DxMONITOR

Animal Health Report

Fall 1993

Inside this Issue

If you wish to continue to receive the DxMONITOR, you must return page 1.

The DxMONITOR Animal Health Report is distributed quarterly as part of the Veterinary Diagnostic Laboratory Reporting System (VDLRS). The VDLRS is a cooperative effort of the American Association of Veterinary Laboratory Diagnosticians (AAVLD), the United States Animal Health Association (USAHA), and the United States Department of Agriculture, Animal and Plant Health Inspection Service (USDA:APHIS). The purpose of the DxMONITOR is to report trends of confirmed disease diagnoses and animal health data collected from veterinary diagnostic laboratories and the USDA:APHIS.

Caution should be taken when extrapolating information reported in the DxMONITOR due to the inherent biases of submitted specimens. Trends should be interpreted with care. An increase in the number of positive tests for a given diagnosis/agent may be the result of a true increase in prevalence, however, it may only reflect a new State testing requirement, a heightened awareness of the condition, or an increase in the number of laboratories reporting data.

For this issue, the disease reporting period for new data was April 1, 1993 through June 30, 1993.
Data have been reported by diagnostic laboratories in the States indicated on the inside back cover, from the National Veterinary Services Laboratories (NVSL), and from the APHIS:Veterinary Services program staffs.

Test results are now presented as percent positive rather than number positive and negative to facilitate comparison among regions. Laboratory reported diseases in Section I are reported as percent of tests. Diseases in Sections II , III and IV are reported as percent of accessions. Increases in denominators may be a reflection of the addition of new labs and/or labs reporting additional diseases not previously reported.

Send all correspondence and address changes to:

USDA:APHIS:VS
DxMONITOR Animal Health Report
555 South Howes, Suite 200
Fort Collins, CO 80521-2586
(303) 490-7800

Request for Delivery Renewal and Reader Input

Please complete and return at least Question 1 (no response will result in your removal from the mailing list). Your input on the remainder will be appreciated.

1. **Do you wish to continue receiving the DxMONITOR? (Check one.)** ☐ **Yes** ☐ **No**
   If no, please take a moment to explain.

Name _____

Address _____

_____

_____

Would you be willing to pay a minimal annual fee to cover shipping costs? ☐ Yes ☐ No

2. In your opinion, does the DxMONITOR provide useful and timely information about veterinary diagnostic laboratory findings and trends in animal disease? (Check one.) ☐ Yes ☐ No If no, please explain.

3. Do you apply this information in your work? ☐ Yes ☐ No If Yes, How?

4. Which sections of the DxMONITOR do you routinely read? (Check all which apply.)
   ☐ All ☐ Lab Notes ☐ Selected Diseases ☐ Calf Diarrheas
   ☐ Piglet Diarrheas ☐ Bovine Abortions ☐ DxNEWS ☐ Appendix

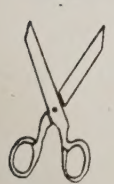
5. Rate the subject areas included in the DxMONITOR according to your interest level. (Use a scale of 1-4: 1 = low interest and 4 = high interest.)
   ___ Lab Notes ___ Selected Diseases ___ Calf Diarrheas ___ Piglet Diarrheas
   ___ Bovine Abortions ___ DxNEWS ___ Appendix

6. What do you like/dislike most about the DxMONITOR's current content?

7. What do you like/dislike most about the DxMONITOR's current method of presentation? (e.g., graphs scaled to maximize readability vs all graphs on a 100% scale.)

8. Are there any diseases/diagnoses not included in the DxMONITOR which you would like to see included? (e.g., poultry diseases.)

9. Education level. (Check all which apply.)
   ☐ High School ☐ Bachelor's Degree ☐ Professional School (e.g., DVM, MD)
   ☐ Master's Degree ☐ Doctorate



10. Type of employment. (Check one.)

☐ USDA:APHIS:Veterinary Services ☐ University ☐ Private Business
☐ USDA:Other (Specify) _____ ☐ Foreign ☐ U.S. State Government (Other than Univ.)
☐ Veterinary Practitioner ☐ Industry/Producer Group ☐ Other (Specify) _____

11. Do you have any suggestions on potential applications or collaboration opportunities for the DxMONITOR?

12. Please share any other comments about the DxMONITOR:

USDA:APHIS:VS
DxMONITOR
555 South Howes, Suite 200
Ft. Collins, CO 80521-2586

PLACE POSTAGE HERE

USDA:APHIS:VS
DxMONITOR
555 South Howes, Suite 200
Ft. Collins, CO 80521-2586

Lab Notes

This section presents short descriptions of current investigations, outbreaks, or events of potential interest to diagnostic laboratories. The purpose is to provide a forum for timely exchanges of information about veterinary diagnostic laboratory activities. Submissions from nonparticipating laboratories are welcome.

Porcine Reproductive and Respiratory Syndrome (PRRS) Virus in Swine

Data on PRRS have been collected from participating laboratories for two quarters. The criterion for diagnosis are virus isolation or antibody detection by indirect fluorescent antibody (IFA). Results are presented in the Lab Notes until sufficient information is collected to warrant inclusion in Section I - Selected Diseases. Only the Pacific region reported results for the second quarter of 1993, with a percent positive of 33.3 (Figure 1).

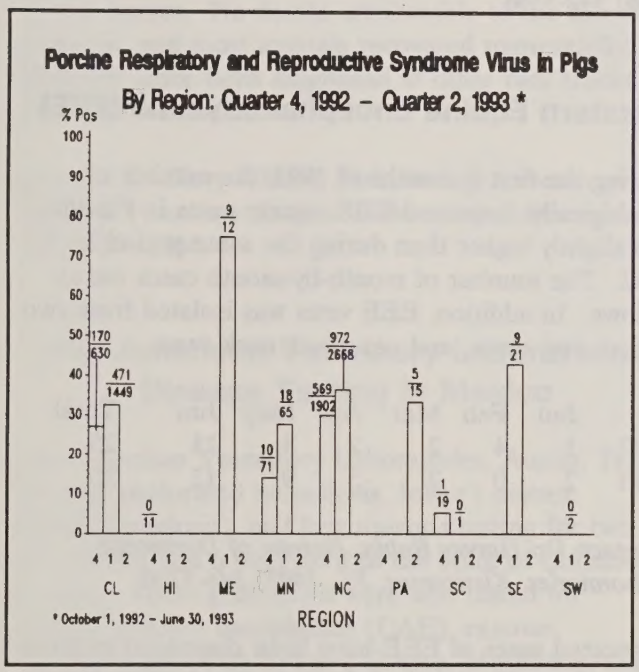


Figure 1

Contact: DxMONITOR, USDA:APHIS:Veterinary Services, Ft. Collins, CO, (303) 490-7863.

Hog Cholera in Cell Line

The Diagnostic Virology Laboratory (DVL) at National Veterinary Services Laboratories (NVSL) identified hog cholera virus (HCV) in the IB-RS-2 cell line. This cell line was developed in Brazil from swine kidneys and was subsequently submitted to the American Type Culture Collection about 6 years ago. It has since been distributed to a number of other laboratories. John Black of American BioResearch, Seymour, Tennessee, detected a pestivirus in the cell line. He forwarded the cells to Dr. Steve Bolin of the National Animal Disease Center. After a preliminary evaluation and a concern that there might be HCV in the cell line, Dr. Bolin forwarded the cells to the Diagnostic Virology Laboratory. The cells were passaged onto the PK-15 cell line and stained with HCV and bovine viral diarrhea virus polyvalent fluorescent antibody conjugates. Fluorescence was observed with both conjugates. The cell cultures were then stained with five HC-specific monoclonal antibodies, and HCV was identified. Specific nucleic acids were identified using the polymerase chain reaction. The HCV has been inoculated into susceptible pigs for pathogenicity and immunologic studies. We believe this represents the first isolation of HCV within materials found in the United States since 1977. John Black and Dr. Steve Bolin are to be commended for detecting this virus.

Contact: Dr. Merwin Frey, Diagnostic Virology Laboratory, National Veterinary Services Laboratories, Ames, IA, (515) 239-8266.

An Outbreak of Venezuelan Equine Encephalomyelitis (VEE) in Horses in Southern Mexico

In May 1993, horses showing encephalitis symptoms were observed in the State of Chiapas, Mexico. By the end of July 1993, a total of 75 horses were reported to be ill with 61 deaths and 35,000 horses vaccinated. The VEE virus was isolated and identified by the Exotic Animal Disease Commission Laboratory (EADCL) in Mexico City. In addition, they isolated VEE from tissues submitted by the EADCL. The NVSL identified the VEE isolates as an enzootic strain variant. The virus was further characterized by the Yale Arbovirus Research Unit, New Haven, Connecticut, as serotype 1E. An enzootic strain had not been previously reported to cause disease in horses or to incite an epizootic

disease outbreak. The last equine case was reported July 25, 1993, and no human cases were reported.

Contact: Dr. A. D. Alstad, Diagnostic Virology Laboratory, National Veterinary Services Laboratories, Ames, IA, (515) 239-8266.

Avian Influenza (AIV) in Ratites

In June 1993, AIV H5N5 was isolated by the Texas Veterinary Medical Diagnostic Laboratory from a rhea and an emu on two separate premises in Texas. The isolates were not pathogenic for experimentally inoculated chickens or turkeys. Based on molecular analysis, the isolates were apparently identical to the H5N5 virus isolated earlier this year from live bird markets in the northeastern United States and Florida. Concurrently, H7N1 AIV was isolated by the Rollins Animal Disease Diagnostic Laboratory, Raleigh, North Carolina, from a group of 35 rheas in North Carolina. The H7N1 virus was not pathogenic for chickens or turkeys when tested at NVSL, and the amino acid sequence cleavage site was different for the pathogenic isolates. Traceouts from these positive flocks resulted in the detection of H7N1 antibody in rheas and emus in Arizona, Oklahoma, and Texas. H5N5 antibody was detected in emus in Alabama, Georgia, Louisiana and Texas. Many of the positive birds were traced to auctions in Texas. The viruses were recovered from sick or dead birds, but it could not be confirmed that the clinical disease or death observed was caused by infection with AIV.

Contact: Dr. Brundaban Panigrahy, Diagnostic Virology Laboratory, National Veterinary Services Laboratories, Ames, IA, (515) 239-8266.

Bovine Leptospirosis

The Athens Diagnostic Laboratory, Athens, Georgia, diagnosed six cases of bovine leptospirosis during the early part of 1993. Three of these cases were abortions/stillbirths; the other three were sudden deaths in young calves. All of the cases occurred from mid-January to mid-April and were confined to a three-county area in northeast Georgia.

The fetuses were mid- to late-term abortions or stillbirths. No gross lesions were observed at necropsy. The diagnosis of leptospirosis was made by fluorescent antibody examination of impression smears from kidney and liver. Follow-up blood work on some herds implicated *L. pomona* as the responsible serovar.

Sudden deaths in young calves associated with leptospiral infections occurred between 2 weeks and 3 months of age. These calves exhibited no overt clinical signs. Gross lesions observed at necropsy were diffusely darkened renal cortices and dark red urine. Leptospiral organisms were readily demonstrated in impression smears from kidneys by fluorescent antibody examination and in sections of formalin fixed kidney using silver stain. Vaccination history was unknown in most instances.

Contact: A. Wayne Roberts, Cathy A. Brown and Gerard Clarke, Diagnostic Assistance Laboratory, College of Veterinary Medicine, Athens, GA, (706) 542-5568

Eastern Equine Encephalomyelitis (EEE)

During the first 6 months of 1993, the number of serologically diagnosed EEE equine cases in Florida was slightly higher than during the same period in 1992. The number of month-by-month cases are as follows. In addition, EEE virus was isolated from two horses, two emus, and one black neck swan.

	Jan	Feb	Mar	Apr	May	Jun	Total
1992	1	4	2	2	3	13	25
1993	2	0	2	5	9	12	30

Contact: Dr. Harvey Rubin, Bureau of Diagnostic Laboratories, Kissimmee, FL, (407) 846-5200.

Suspected cases of EEE have been diagnosed in three horses from Virginia in July, and one confirmed case was reported from Maryland in August, 1993.

Contact: State Veterinarian, Richmond, VA, (804) 786-2483.

The Centers for Disease Control (CDC) have received reports of one equine EEE case from South Carolina, one dog and one emu EEE case from Georgia, and one emu WEE case from Arkansas between January 1 and June 1, 1993.

Contact: Dr. Bruce Francy, Division of Vector-borne Infectious Diseases, Centers for Disease Control and Prevention, Ft. Collins, CO, (303) 221-5459.

New York Eradicates Pseudorabies

New York is now the fifth State to eradicate the livestock disease pseudorabies. The State of Washington has advanced to Stage IV (surveillance).

[APHIS Press Release, July 21, 1993]

Equine Viral Arteritis (EVA)

EVA was diagnosed on July 30, 1993, at the Arlington International Race Course in Arlington Heights, Illinois, based on virus isolation, serology, and clinical signs. About 160 horses out of about 2,000 at the track were examined. Virus was isolated from 24 of 37 sick horses. No deaths attributable to the disease occurred, and most animals recovered uneventfully. EVA has since been diagnosed at other race tracks in Iowa and Nebraska.

Contact: Dr. Terry Wilson, Pathobiology Laboratory, National Veterinary Services Laboratories, Ames, IA, (515) 239- 8266.

Pan American Veterinary Laboratories Disease Testing in Mexico

Pan American Veterinary Laboratories, Austin, Texas, recently performed brucellosis, Johne's disease (paratuberculosis), and leptospirosis testing for two dairy herds and a beef herd in the State of Chihuahua, Mexico. Three goat herds were also tested for caprine arthritis encephalitis (CAE), caseous lymphadenitis (CL), Johne's disease, brucellosis, and leptospirosis.

Percents positive ranged as follows: 2 to 73 percent for Johne's in cattle and 3 to 14 percent in goats; 0 to 41 percent for brucellosis in cattle and 0 to 68 percent in goats; 1 to 11 percent for leptospirosis in cattle and 0 to 9 percent in goats; 32 to 56 percent for CAE in goats; and 7 to 11 percent for CL in goats.

Contact: Dr. Jim Alexander, Pan American Veterinary Laboratories, Austin, TX, (512) 794-9655.

Salmonella enteritidis (SE) Control Program Status Report

A total of 42 human SE outbreaks have been reported as of October 4, 1993. Thirty-five investigations have been completed, with eggs implicated in 12 of the outbreaks.

Contact: Dr. John Mason, SE Control Program, USDA:APHIS:VS, Hyattsville, MD, (301) 436-4363.

EHD Outbreak on the Virginia/West Virginia Border

Beginning in early September, an increasing number of white-tailed deer were found dead along the northern Virginia/West Virginia border with lesions typical of Epizootic Hermorrhagic Disease (EHD). Workers at the Southeastern Cooperative Wildlife Disease Study in Athens, Georgia, have isolated EHD, serotype 2, from deer samples sent to them from northern West Virginia. Eight cattle herds were affected in West Virginia.

Around September 15, owners of five cattle herds and one lamb flock in Virginia began seeing animals with ulcerative lesions of the lips and hard palate primarily with some ulcers on the tongues of the lambs only. Only one animal was affected in each of the cattle herds. Of five cattle tested serologically, all five were positive for EHD and one was also positive for Bluetongue (BT). The feeder lamb flock experienced approximately 70 percent morbidity and lost an average of four to five lambs a day for a total mortality of approximately 30 animals (18 percent). Adult sheep on the farm in direct contact with the lambs were not affected. Serological testing of seven lambs was negative for both EHD and BT, however, one lamb submitted for necropsy had histopathologic lesions of vasculitis and hemorrhage compatible with a diagnosis of an orbivirus infection, either EHD or BT. The outbreak appears to have been self-limiting with no new cases reported since October 1, 1993.

Contact: Dr. Bruce Akey, Virginia State Veterinarian, Richmond, VA, (804) 786-9202

I. Patterns of Selected Diseases

Section I contains information on diseases of interest as designated by List B of the Office International des Epizooties (OIE). The purpose of reporting these data is to monitor confirmed cases of specific diseases on a State-by-State or regional basis so that national distributions can be mapped and evaluated.

Key to Figures in this Section:

- **In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.**
- **Data are presented by region or State of specimen origin and quarter year of specimen submission. The numbers presented above each bar represent number positive over total tests.**
- **Results reported with dates not corresponding to the current quarter are the result of increased testing times or related to reporting times.**
- **Abbreviations for regions used in the figures are:**

AK = Alaska	**MN = Mountain**	**SC = South-Central**
CL = Central	**NC = North-Central**	**SE = Southeast**
FL = Florida	**NE = Northeast**	**SW = Southwest**
HI = Hawaii	**PA = Pacific**	**UNK = Unknown**
ME = Mideast	**PR = Puerto Rico & U.S. Virgin Islands**	

☐ Bovine Leukosis

Criteria: AGID or pathology.

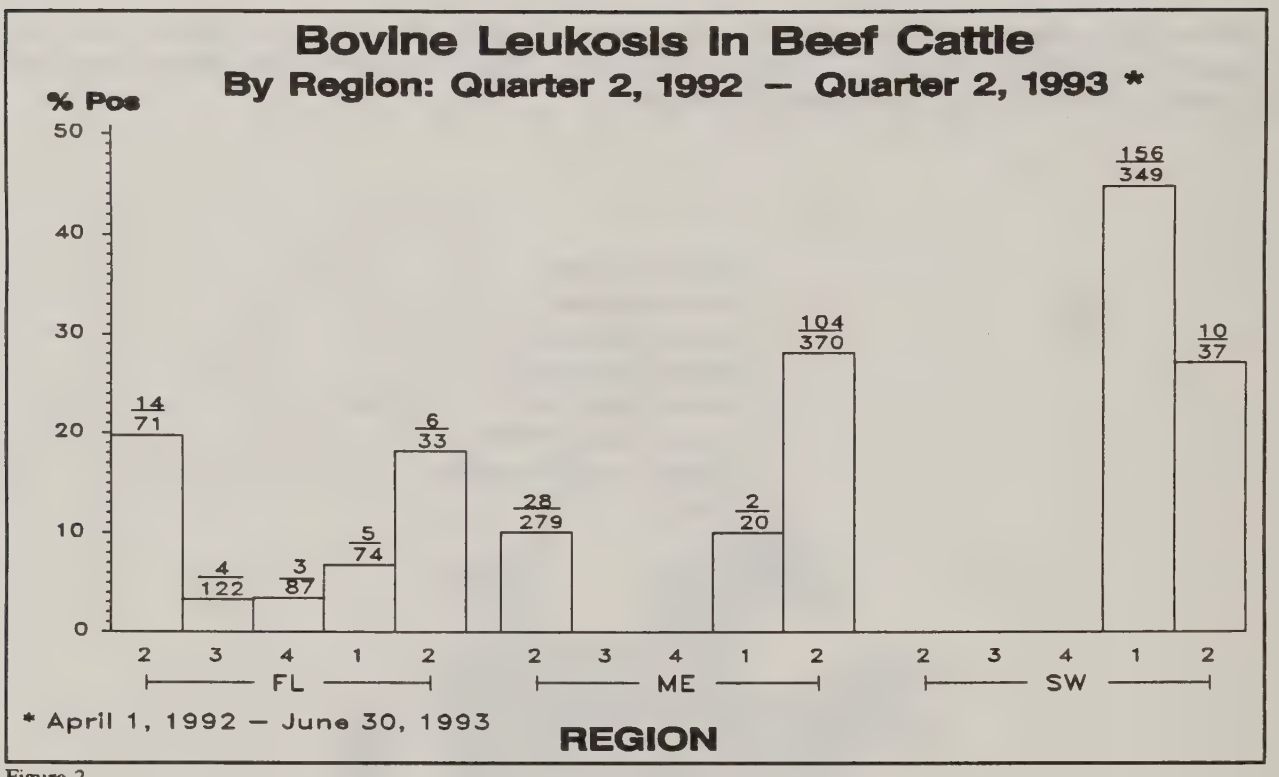


Figure 2

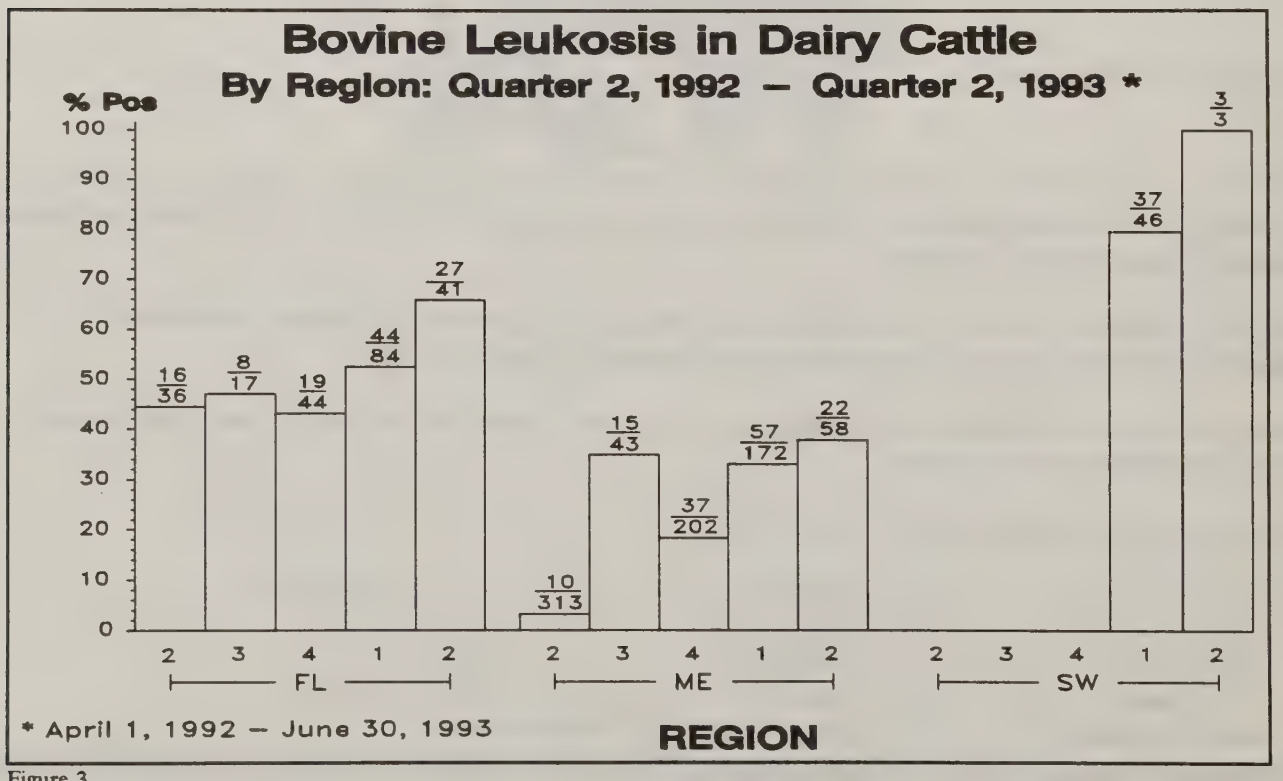


Figure 3

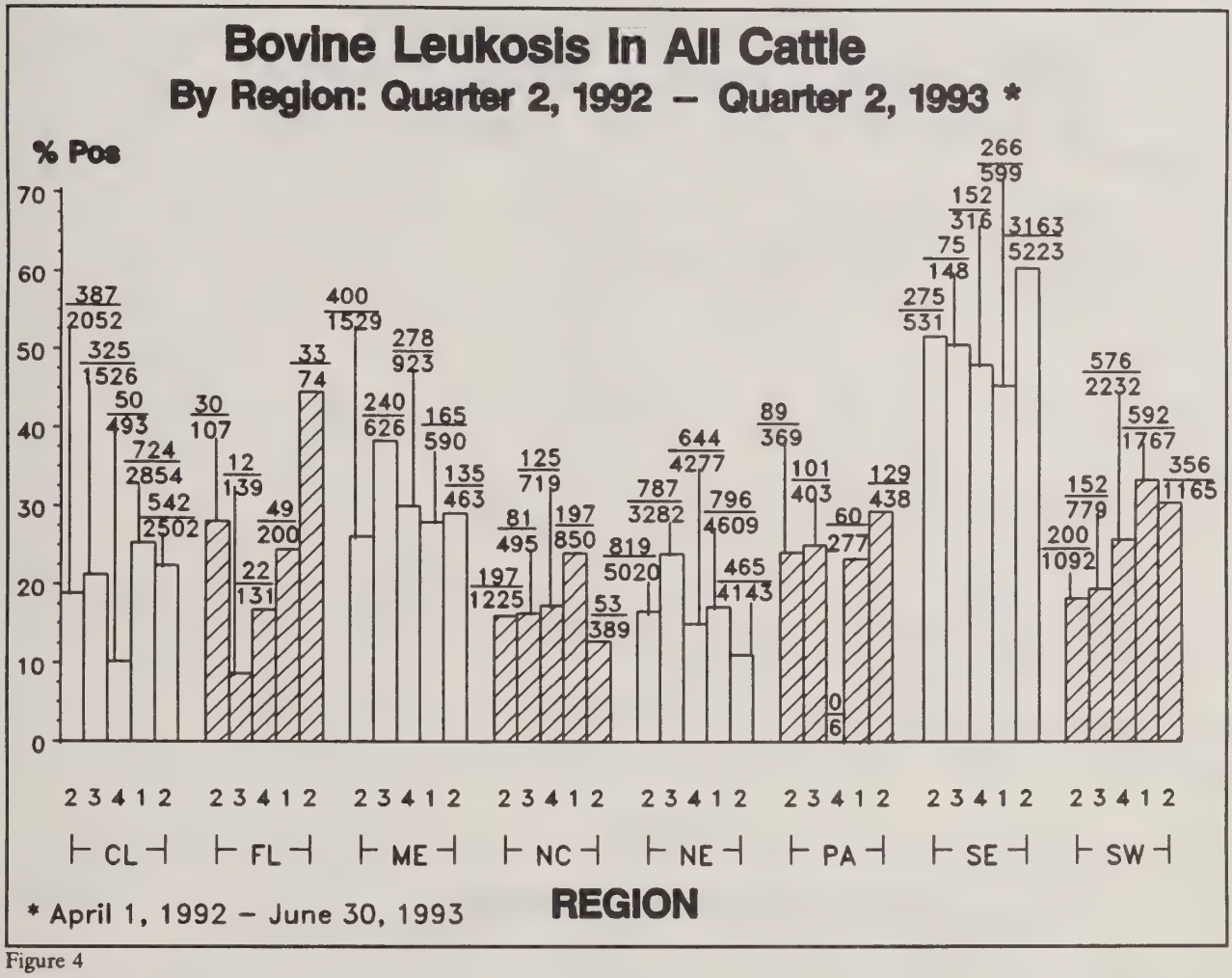


Figure 4

Three regions reported bovine leukosis results by class of animal. The Southwest (SW) region had the highest percent for dairy and the Mideast (ME) region had the highest percent positive for beef (Figures 2 and 3). For the second quarter of 1993 (April through June), there were 4,915/14,748 (33.3 percent) positive tests for Bovine Leukosis. The Southeast (SE) region had the highest number positive and highest percent positive with 60.6 (3,163/5223) (Figure 4). The high prevalence in the SE region is attributed to the testing of large herds with high prevalences.

☐ Paratuberculosis

Criteria: Culture, histopathology, AGID, ELISA, CF or DNA probe.

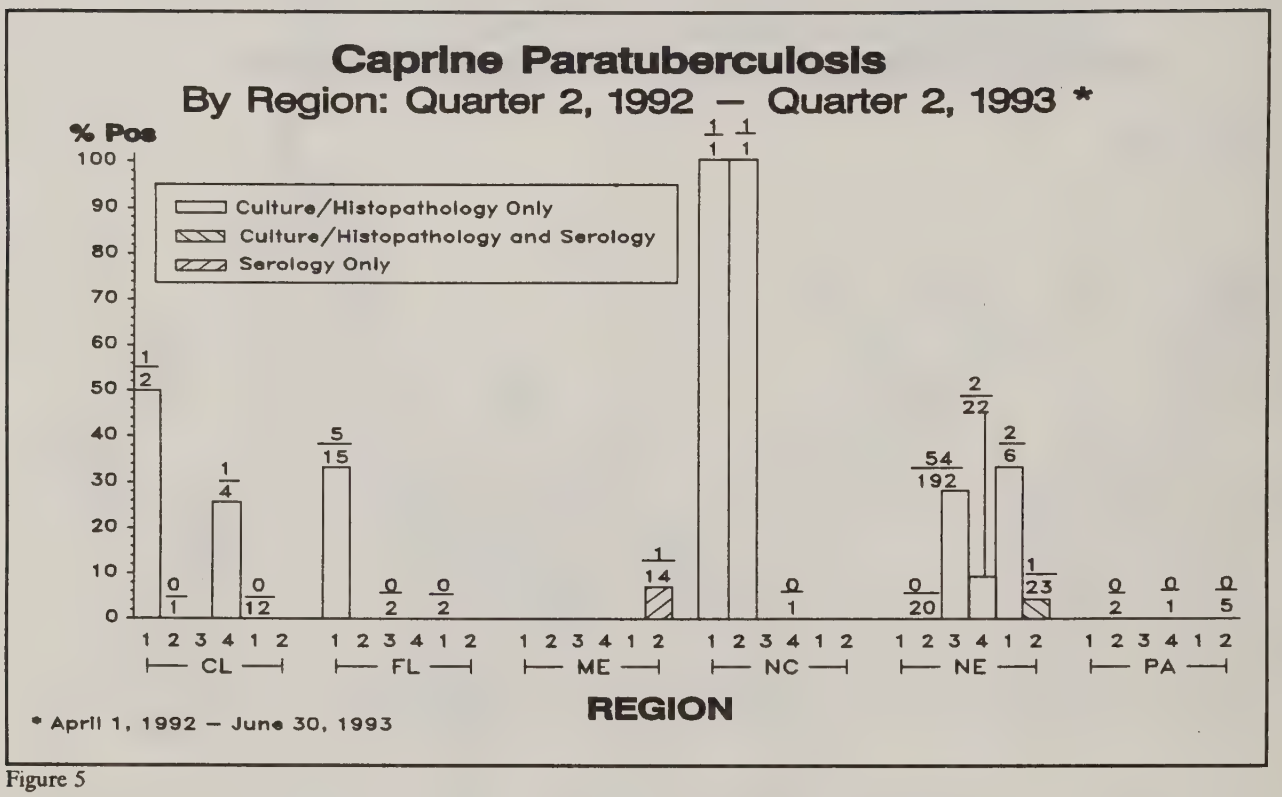


Figure 5

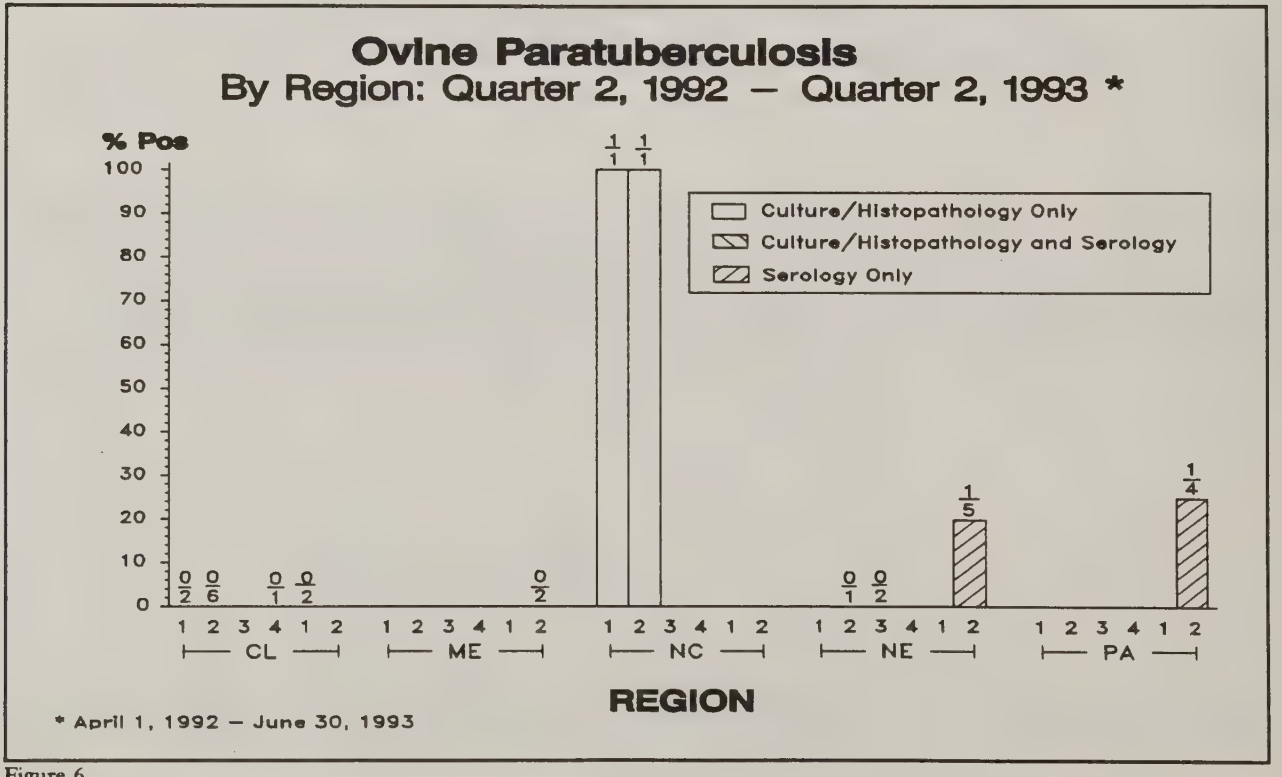


Figure 6

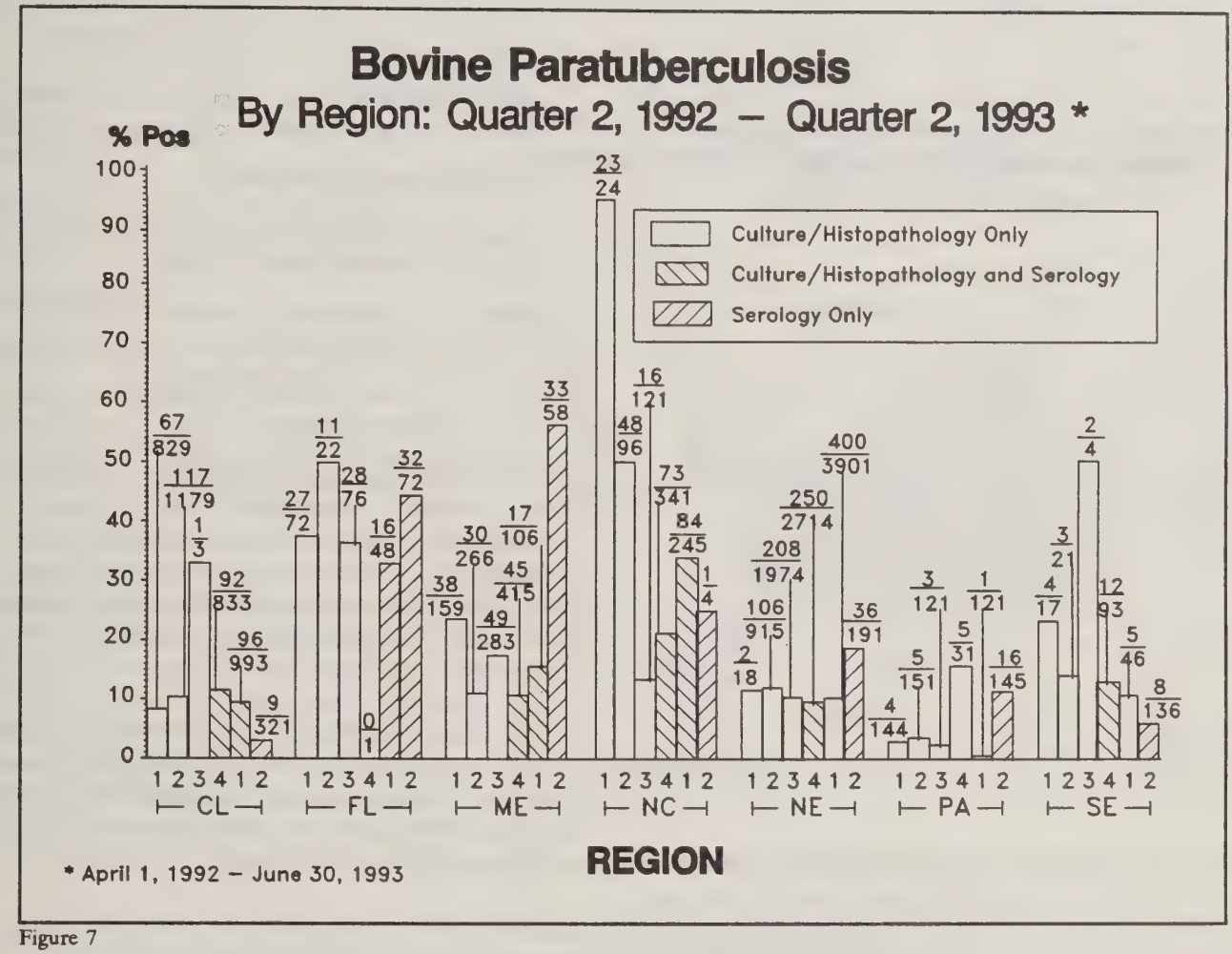


Figure 7

Beginning with Quarter 4, 1992, paratuberculosis test results were accepted for culture or serology. Prior to Quarter 4, 1992, results were reported for culture only. Quarter 2, 1993 results are serology only (cultures to be reported next quarter).

Positive caprine paratuberculosis tests occurred in the Mideast (ME) (1/14, 7.1%) and the Northeast (NE) regions (1 out of 23, 4.4%). Overall, 2 out of 42 (4.8%) of caprine tests were positive (Figure 5). Positive ovine paratuberculosis tests during the second quarter of 1993 occurred in the NE (1 out of 5, 20.0%) and Pacific (PA) regions (1 out of 4, 25.0%). Overall, 2 out of 11 (18.2%) of ovine tests were positive (Figure 6).

The ME region had the highest percent positive for bovine species during the second quarter of 1993 with 33 out of 58 (56.9%). Overall, 138 out of 1260 (11.0%) of bovine tests were positive for the second quarter (Figure 7).

☐ Bovine Brucellosis

Source: Dr. Mike Gilsdorf
USDA:APHIS:VS
Cattle Diseases Staff
(301) 436-4918

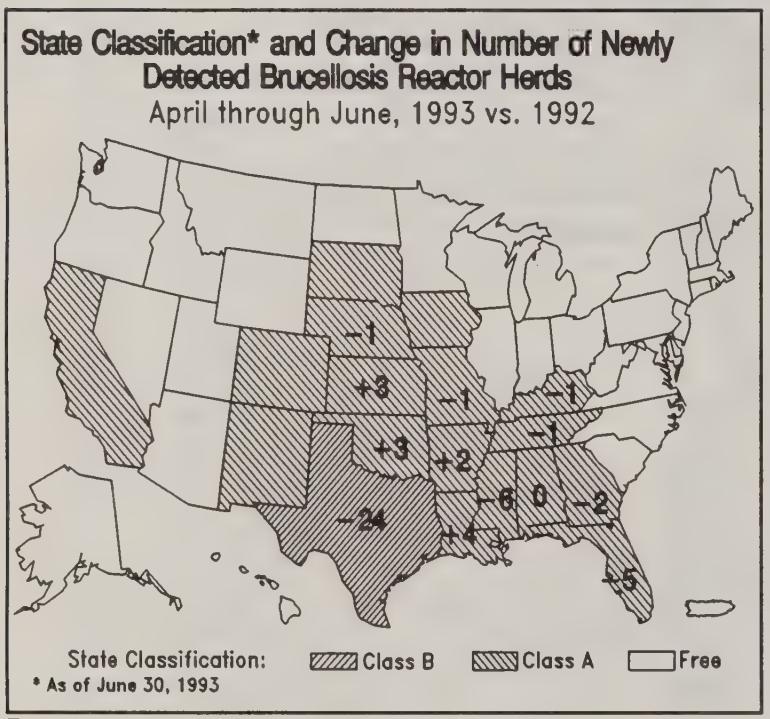


Figure 8

Reactor herd = Herd with at least one case of brucellosis confirmed by serology or culture.

Definition of State Classifications:

Class B: More than 0.25 percent, but less than 1.5 percent of all herds infected.

Class A: No more than 0.25 percent of all herds infected.

Free: No infected herds under quarantine during the past 12 months.

There have been no State classification changes for bovine brucellosis since March 1993. Louisiana, Arkansas, Oklahoma, and Kansas had increases in the number of newly detected herds, while Texas, Nebraska, Missouri, Mississippi, Kentucky, Florida, Georgia, and Tennessee had decreased numbers (Figure 8).

For the entire U.S., there were 103 newly detected reactor herds from April through June 1993, seven more herds than were newly identified from January to March 1993 (Figure 9). Only Texas and Oklahoma had more than 10 newly detected brucellosis reactor herds during the quarter (43 and 12 respectively).

There were fewer brucellosis reactor herds detected in the second quarter of 1993 than during the same quarter of 1992. The rate of detection has dropped in Texas over the last four quarters. The overall trend for the remaining States has been decreasing since 1990, although an increase was seen in the second quarter of 1993 compared to the previous quarter (Figure 10).

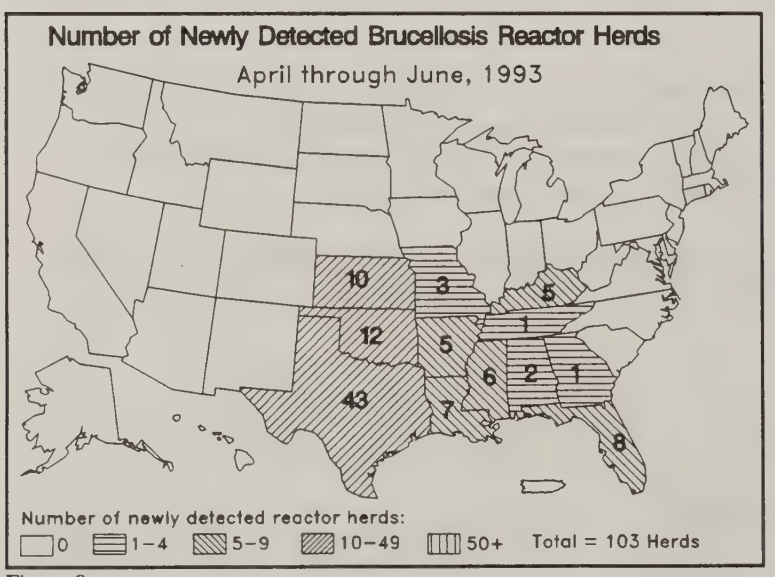


Figure 9

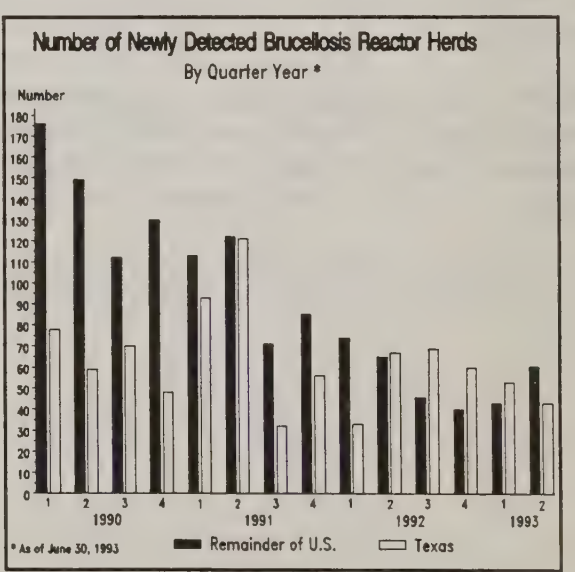


Figure 10

☐ Bovine Tuberculosis

Source: Dr. J.S. VanTiem
USDA:APHIS:VS
Cattle Diseases Staff
(301) 436-8715

Infected = Laboratory confirmed existence of *Mycobacterium bovis*.

Exposed = Animals directly associated with infected animals.

State Classifications:

Modified Accredited: Testing and Slaughter Surveillance programs in effect.

Accredited Free: Testing and Slaughter Surveillance programs have identified no infected bovines for five or more years.

Eight herds of cattle and/or bison were known to be infected with bovine tuberculosis as of June 30, 1993 (Figure 11). Two new herds have been identified and three herds have been eliminated since March 31, 1993. There are currently nine modified accredited States plus Puerto Rico. The remaining States and the Virgin Islands are accredited free.

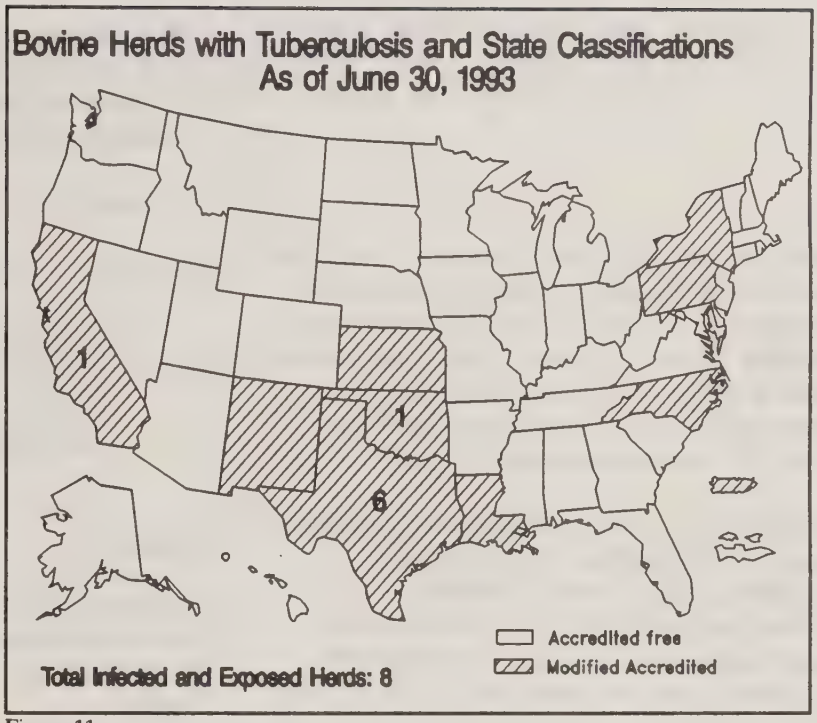


Figure 11

Six captive cervid herds were known to be infected with bovine tuberculosis as of June 30, 1993 (Figure 12). Four new herds have been identified, and five herds have been eliminated since March 31, 1993.

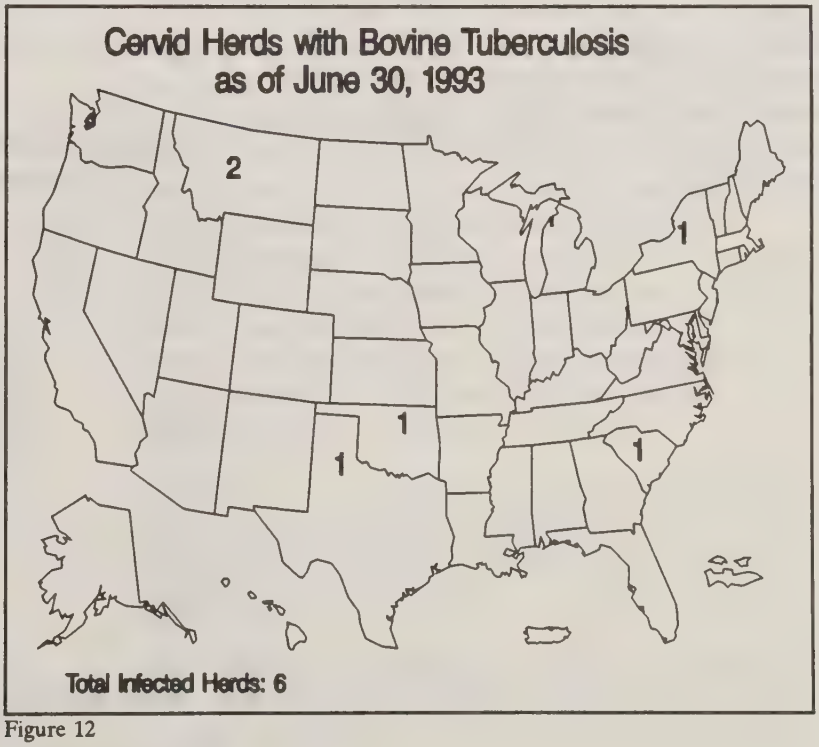


Figure 12

☐ Bovine Spongiform Encephalopathy

Sources: Dr. O. Denny, Northern Ireland
Dr. A. Doherty, Republic of Ireland
Dr. B. Hornlimann, Switzerland
Dr. J. Wilesmith, Great Britain
Dr. M. Savey, France

Bovine Spongiform Encephalopathy
Descriptive Epidemiological Statistics for Great Britain *
As of September 3, 1993

Total number of confirmed cases:	104,417
Total number of affected herds:	26,884
Proportion of dairy herds affected:	46.5%
Proportion of beef suckler herds affected:	10.3%

* England, Scotland, and Wales

Table 1

Since June 4, 1993, Great Britain has had 7,981 newly confirmed cases of bovine spongiform encephalopathy (BSE) with 1,225 more herds affected. About 46.5 percent (up from 44.6 on June 4) of the dairy herds and 10.3 percent (up from 9.5) of the beef suckler herds in Great Britain have been affected (Table 1).

In the last 3 months, 108 additional confirmed cases of BSE have been reported from Northern Ireland, while the Republic of Ireland and Switzerland have had two and six cases respectively. France has reported the addition of one case since July 31, 1992 (Table 2).

Figure 13 shows the cumulative BSE cases for selected countries since April 1992. France, Switzerland, and the Republic of Ireland show relatively little change over the last five quarters compared to Northern Ireland and Great Britain.

Other Countries Affected by BSE

Country	Imported Cases	Native Cattle	No. of Cases	Date of Last Report
Northern Ireland	Yes	Yes	942	1 Sept 93
Republic of Ireland	Yes	Yes	74	1 Sept 93
Switzerland	No	Yes	42	13 Sept 93
France	No	Yes	6	13 Sept 93

Table 2

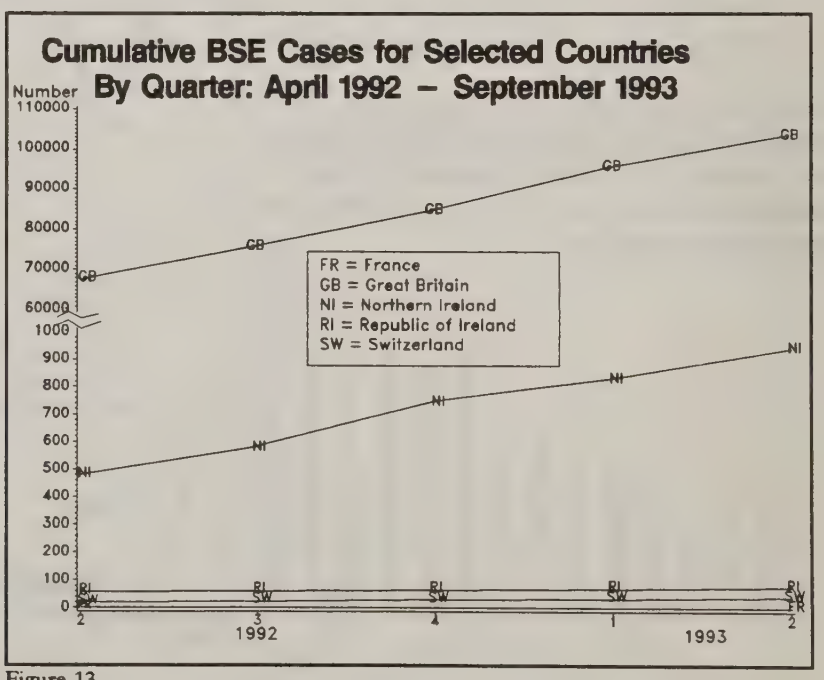


Figure 13

☐ Equine Viral Arteritis

Criteria: Virus neutralization (>1:4 titer) and no history of vaccination, or virus isolation (tissue or semen).

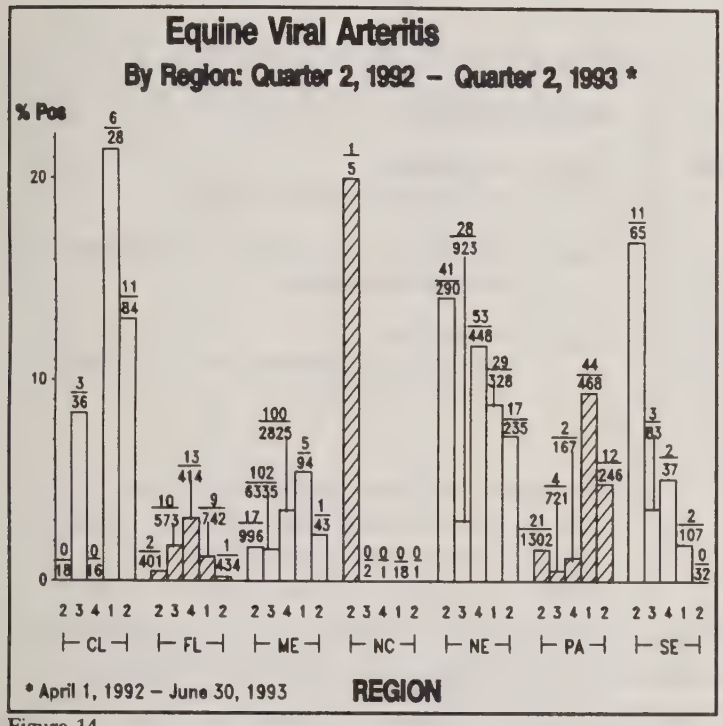


Figure 14

For all regions combined, 44 positive tests (4.0 percent of the 1,114 total tests) for equine viral arteritis were reported for the second quarter of 1993 (Figure 14). This is a decrease in percent positive from the previous quarter (96 out of 1804, 5.3 percent) but is greater than the second quarter of 1992 (94 out of 3,223, 2.9 percent).

☐ Equine Encephalomyelitis

Source: Dr. Jim Pearson, Diagnostic Virology Laboratory, National Veterinary Services Laboratories, (515) 239-8551.

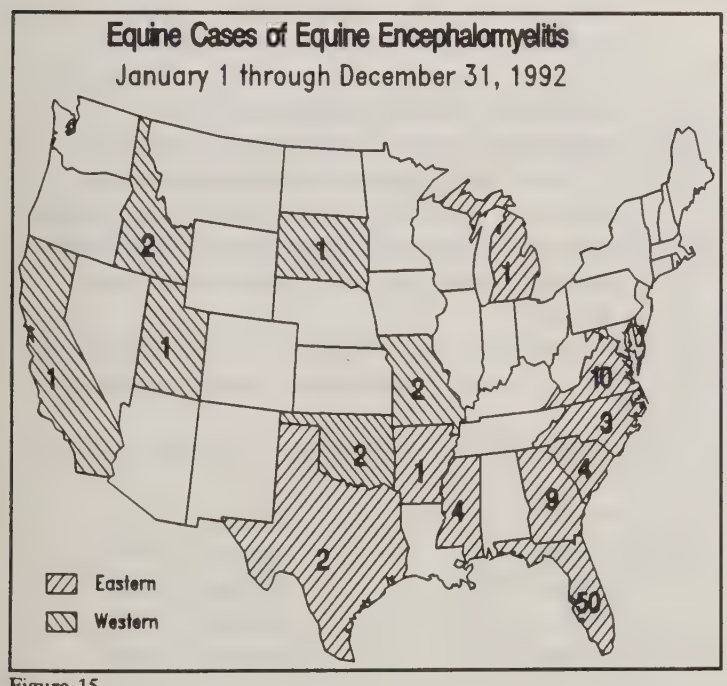


Figure 15

Because of a recent discovery of errors in the Winter 1992 DxMONITOR report on equine encephalomyelitis, updated numbers for January 1 through December 31, 1992 are being presented at this time (Figure 15). Missouri had been reported as having two cases of WEE and 1 case of EEE. The correct numbers are two cases of WEE and no cases of EEE. Alabama and Kentucky had been reported as having three and one cases of EEE, respectively. Neither State had confirmed equine cases of equine encephalomyelitis. There were 94 equine cases reported for 1992 (85 EEE and 9 WEE).

In addition to the equine cases, NVSL isolated EEE from one pheasant (South Carolina) and an emu (Georgia), and WEE from three emus (two in Texas and one in Oklahoma) in 1992.

Other laboratories, including the Centers for Disease Control and Prevention (CDC), diagnosed one dog in Georgia and one emu in Florida with EEE in 1992.

☐ Swine Brucellosis

Source: Dr. Delorias Lenard
USDA:APHIS:VS
Swine Health Staff
(301) 436-7767

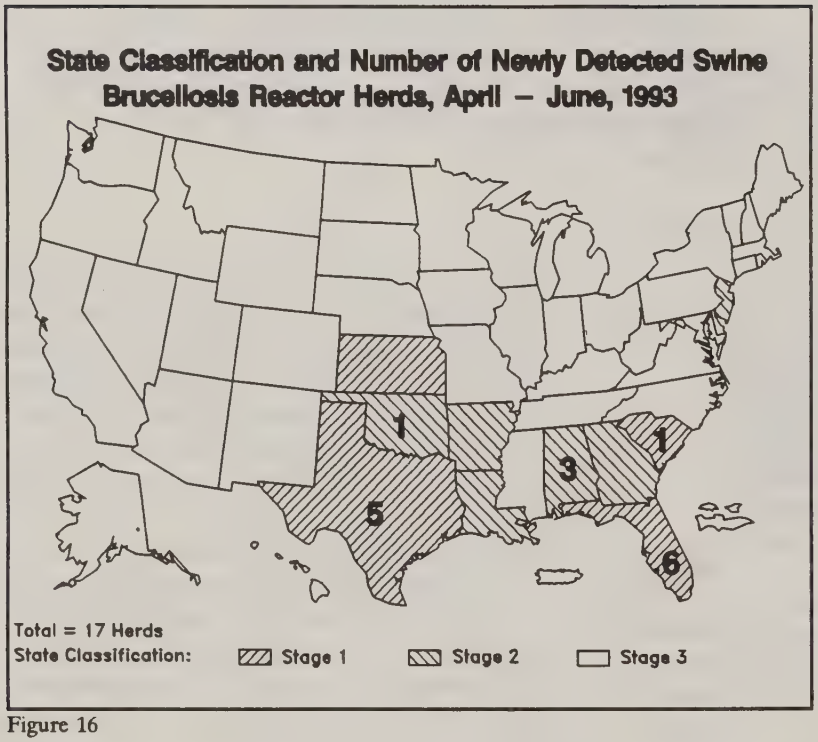


Figure 16

State Classifications:

Stage 1: Organization
(surveillance and traceback begun).

Stage 2: ≥ 10 percent Surveillance/year: ≥ 80 percent of tracebacks successful.

Stage 3: Validated Free
(≥ 5 percent Surveillance/year: ≥ 80 percent of tracebacks successful).

There were no State classification changes between January 1 and June 30, 1993. The 17 swine herds found to be infected with brucellosis during the second quarter of 1993 were one fewer than during the fourth quarter of 1992 (Figure 16) and six more than the first quarter of 1993. The number of newly detected herds decreased in Texas from the fourth quarter of 1992 from 6 to 5 but was 3 more than the first quarter of 1993.

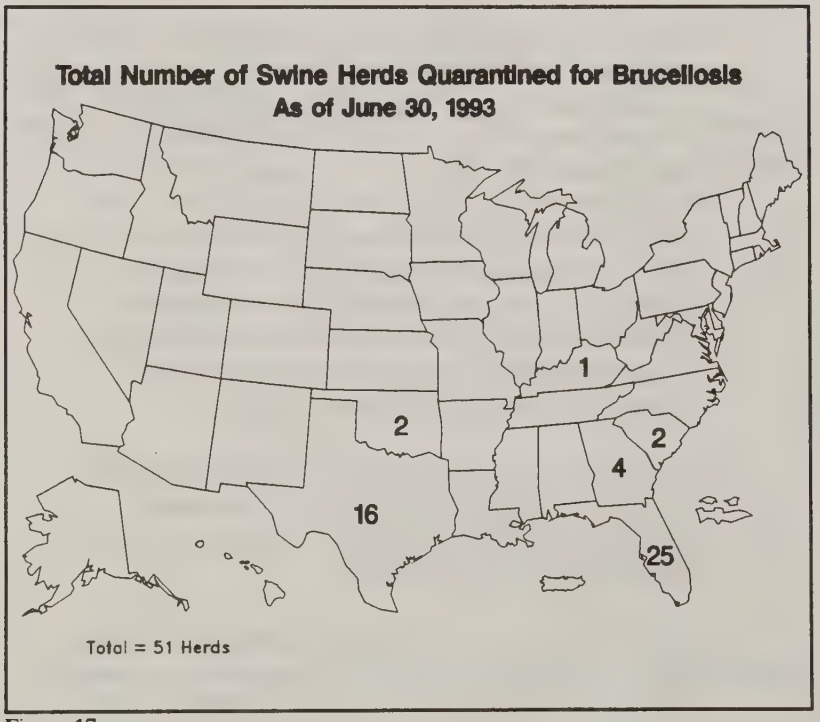


Figure 17

The total number of quarantined herds decreased from 63 in the fourth quarter of 1992 to 59 in the first quarter of 1993 and 51 in the second quarter (Figure 17). Texas decreased from 33 in the fourth quarter of 1992 to 24 in the first quarter and 16 in the second quarter of 1993. Florida has increased from 19 in the fourth quarter of 1992 to 23 in the first quarter and 25 in the second quarter of 1993.

II. Etiologic Agents Associated with Calf Diarrhea

Section II characterizes agents most commonly associated with diarrhea in calves (8 weeks of age or less) from accessions reported to veterinary diagnostic laboratories.

NOTE: Prior to Summer 1993, some laboratories reported total tests run and others reported accessions. Beginning Summer 1993, all laboratories report accessions. Differences seen in percent positive reported may reflect the change in reporting. Not all laboratories report on all diarrheal agents and some report for more than one State. Therefore, the accession denominators for each region may not agree from one agent to the next.

Key to Figures in this Section:

- **In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.**
- **Data are presented by region or State of specimen origin and quarter year of specimen submission. The numbers presented above each bar represent number positive over total tests.**
- **Results reported with dates not corresponding to the current quarter are the result of increased testing times or related to reporting times.**
- **Abbreviations for regions used in the figures are:**

AK = Alaska	**MN = Mountain**	**SC = South-Central**
CL = Central	**NC = North-Central**	**SE = Southeast**
FL = Florida	**NE = Northeast**	**SW = Southwest**
HI = Hawaii	**PA = Pacific**	**UNK = Unknown**
ME = Mideast	**PR = Puerto Rico & U.S. Virgin Islands**	

☐ *Clostridium perfringens* Type C

Criteria: Gross and histopatholigic exam.

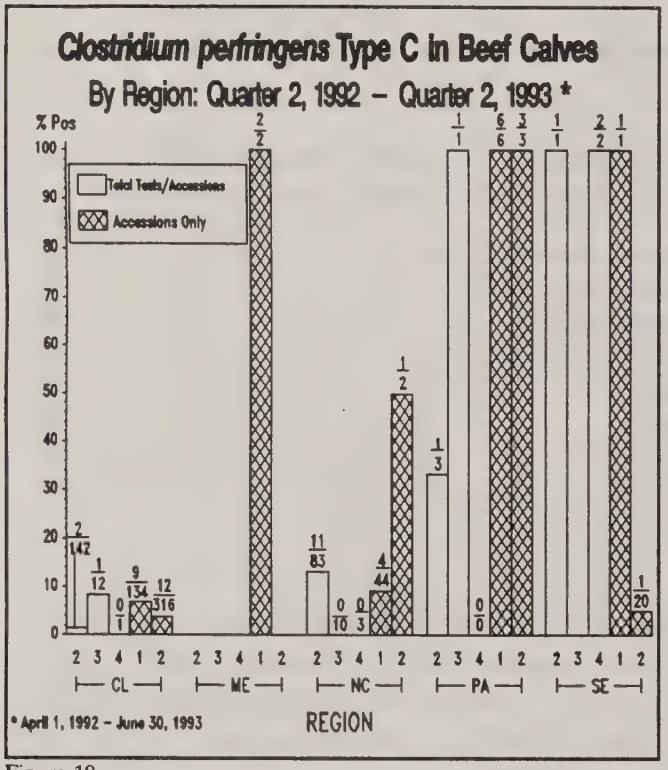


Figure 18

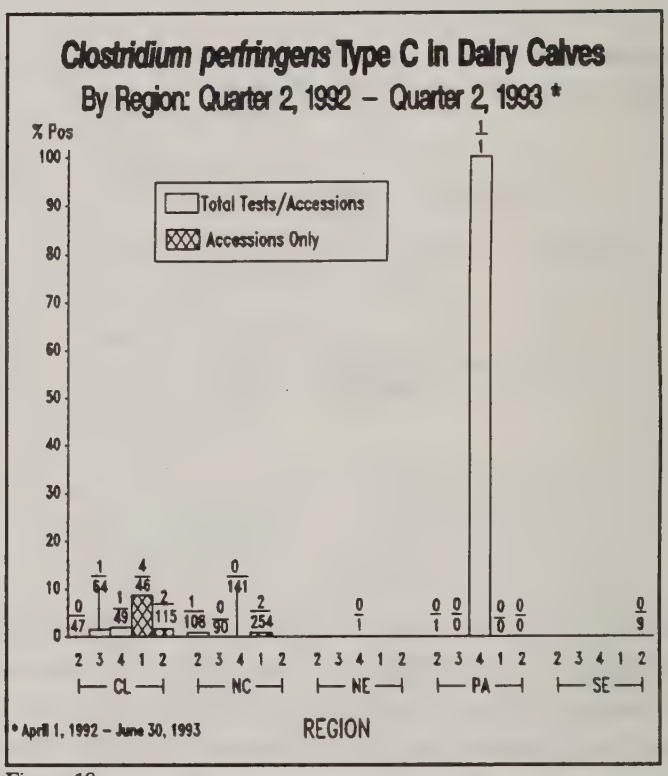


Figure 19

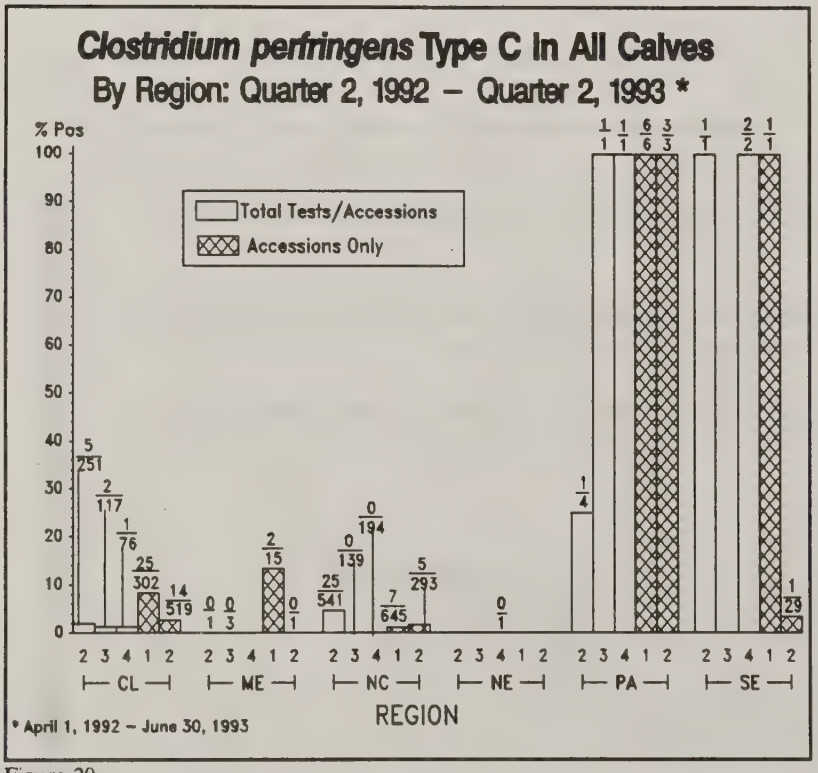


Figure 20

Overall, there were 17 out of 341 (5.0 percent) beef accessions (Figure 18) that tested positive for *Clostridium perfringens* Type C compared to 2 out of 124 (1.6 percent) dairy accessions (Figure 19). During the second quarter of 1993, 850 accessions were reported for all regions with 23 positive results (2.7 percent). The Central (CL) and the North-Central (NC) regions account for the majority of accessions but have among the lowest percents positive (Figure 20).

☐ *Escherichia coli*

Criteria: Culture from intestine and demonstration of at least one virulence characteristic such as: adhesive antigens, bacterial adherence, or enterotoxin.

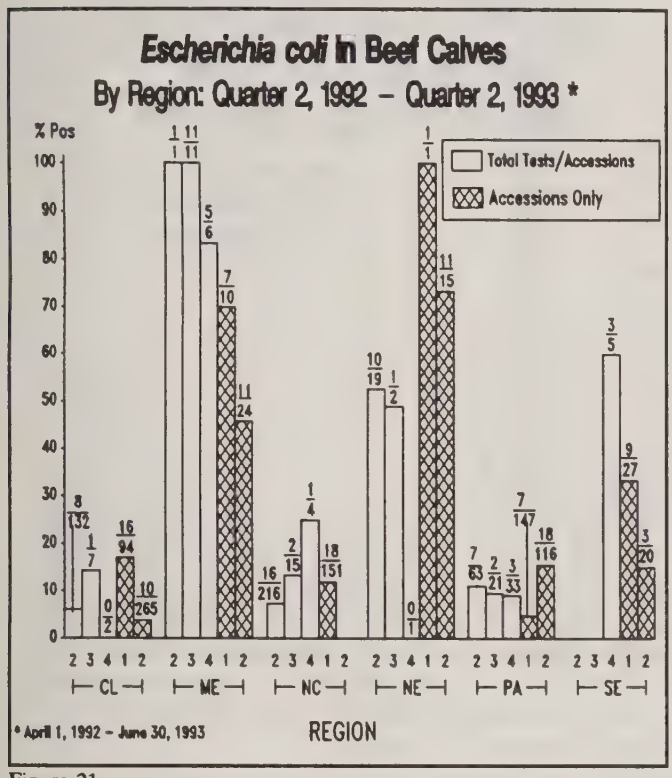


Figure 21

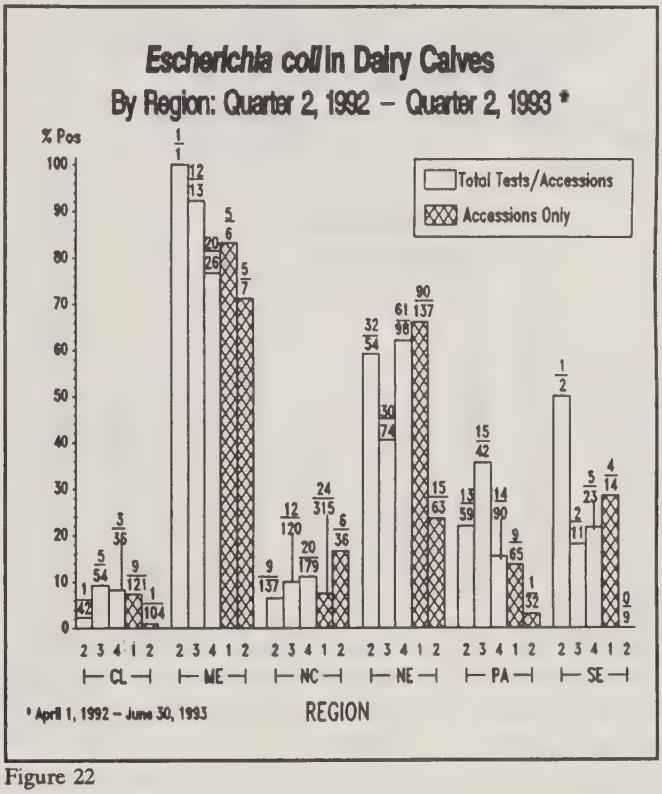


Figure 22

More positive accessions for *E. coli* were reported for beef than for dairy calves (Figures 21 and 22) for the second quarter of 1993 (53 out of 443, 12.0 percent and 28 out of 252, 11.1 percent respectively). Of the 1,161 calf accessions tested, 250 were positive (21.5 percent). For all calves (Figure 23), the North Central (NC) region had the most positive accessions (120/360, 33.3 percent). Puerto Rico (PR) (not shown) had 3 out of 5 positive accessions (60 percent).

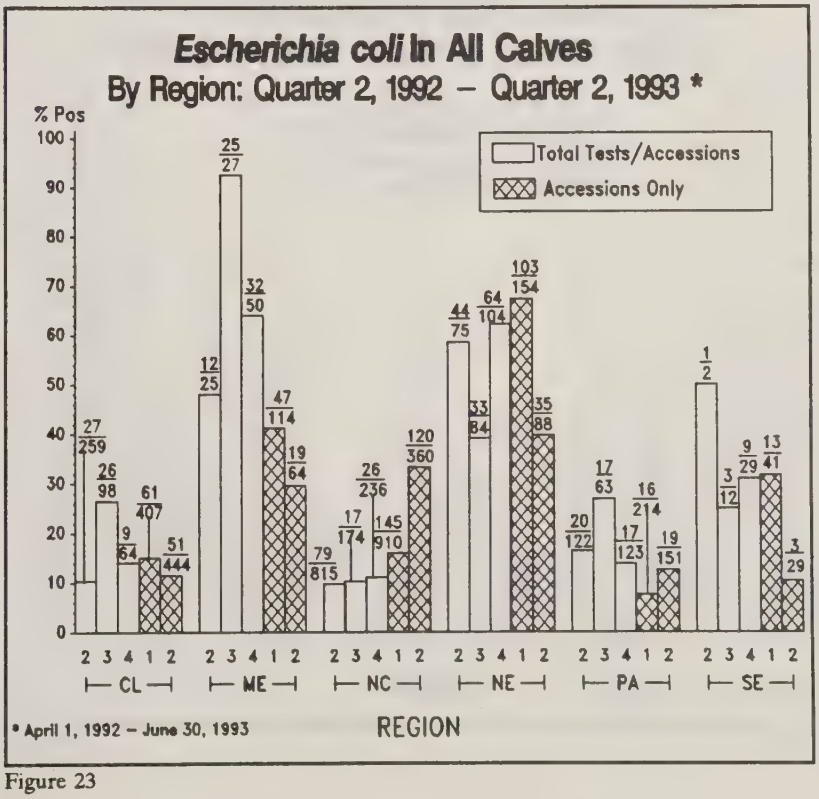


Figure 23

☐ *Salmonella* spp.

Criteria: Culture (serotype identification encouraged).

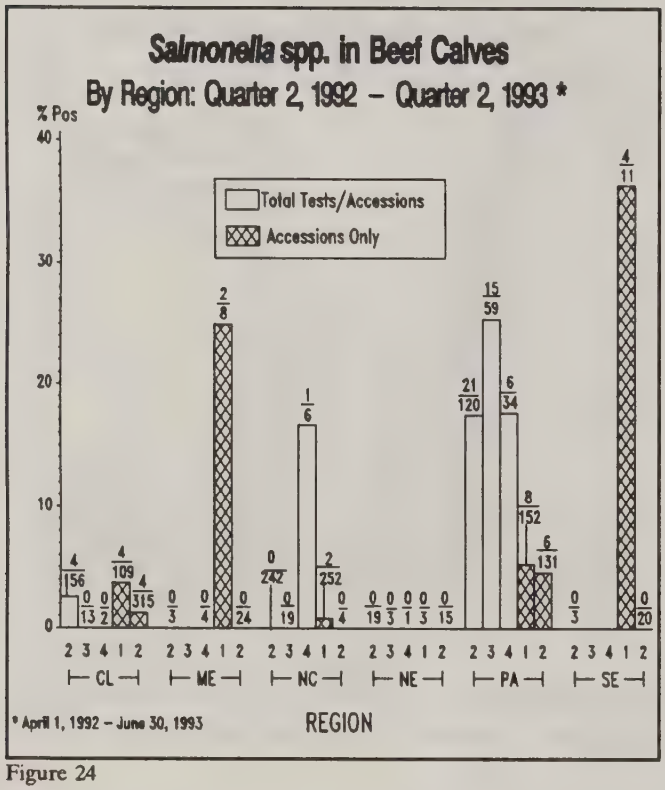


Figure 24

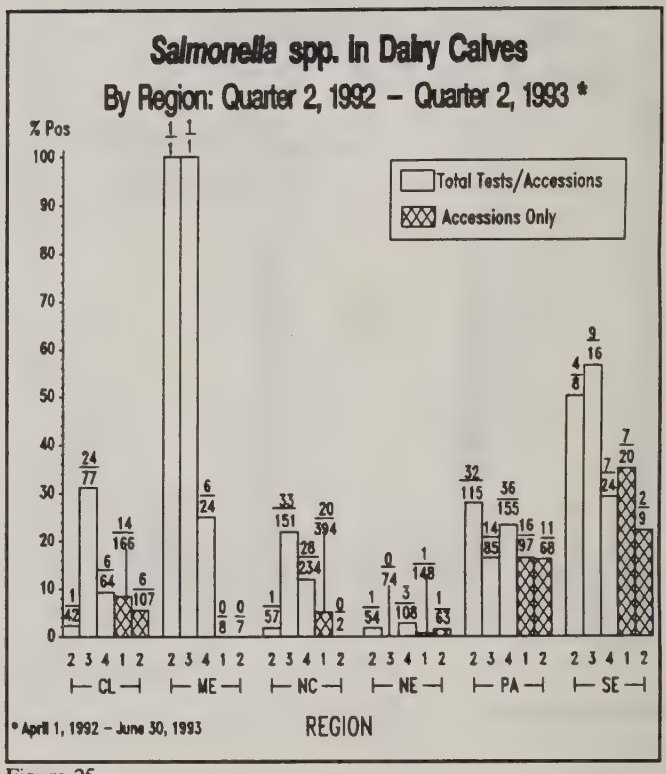


Figure 25

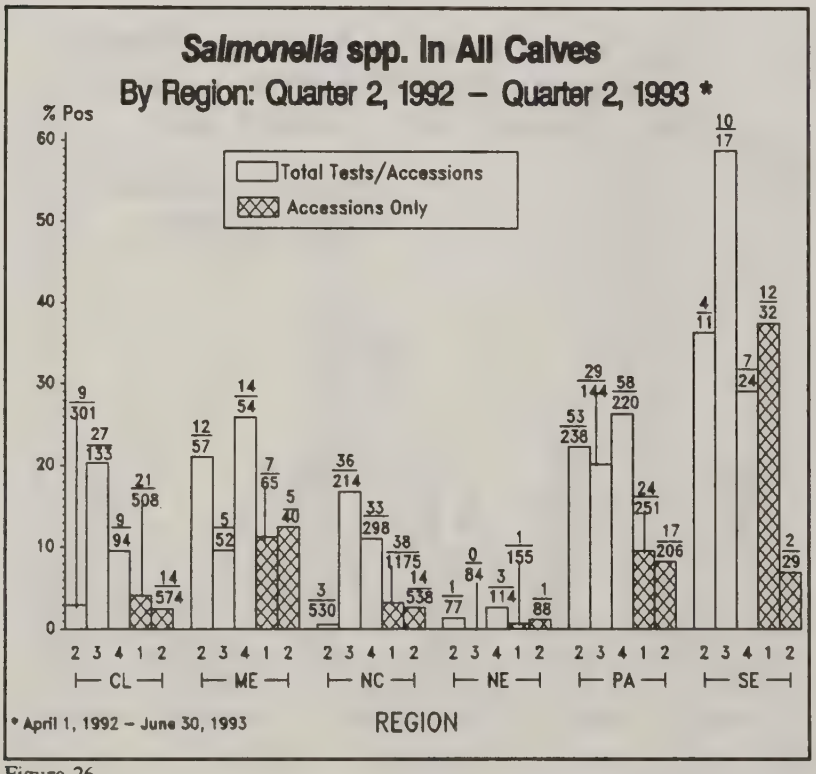


Figure 26

The Pacific (PA) region had the most positive dairy calf accessions for *Salmonella* spp. (11 out of 68, 16.2 percent) and also the most positive beef calf accessions (6 out of 131, 4.6 percent) (Figures 24 and 25). For all calves, 3.7 percent of accessions tested (55/1,501) were positive for *Salmonella* spp. during the second quarter of 1993. This is fewer positive and less percent positive than the previous quarter (115/2,209, 5.2 percent) (Figure 26). *Salmonella* serotypes reported in the second quarter of 1993 were 2 *infantis*, 13 *dublin*, 13 *typhimurium*, 3 9,12 non-motile, and 1 each of *give, muenchen, newport, ohio, istanbul, pakistan, newington, hadar, meleagridis*, and *cerro*.

☐ Bovine Viral Diarrhea Virus

Criteria: Virus isolation or positive FA (any tissue) with histologic lesions.

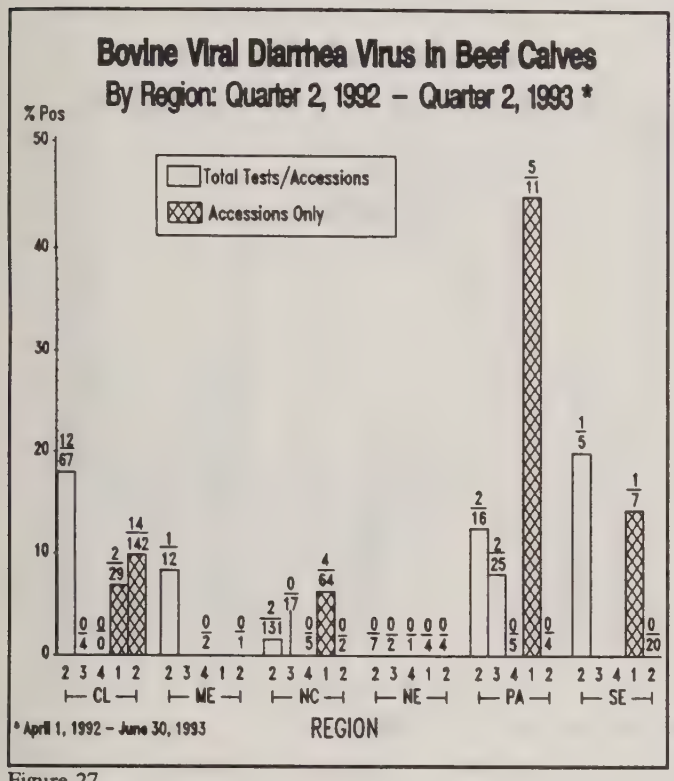


Figure 27

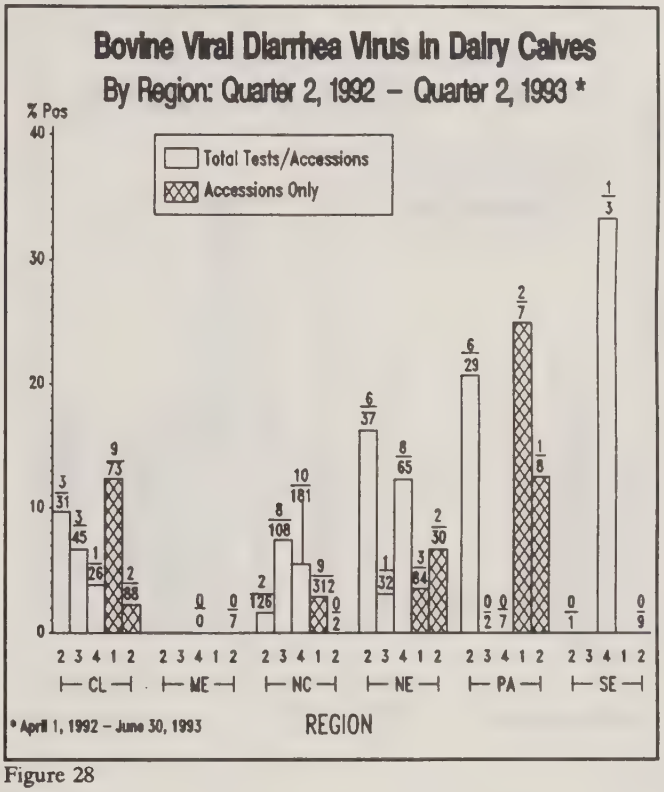


Figure 28

During the second quarter of 1993, the Central (CL) region was the only region to report positive accessions for bovine viral diarrhea (BVD) virus in beef calves with 14 out of 142 (9.9 percent) (Figure 27). The Pacific (PA) region had the highest percent positive for dairy calves at 12.5 percent (1 out of 8) (Figure 28).

Overall, there were 64 positive out of 752 (8.5 percent) accessions reported for the second quarter of 1993. Forty-five out of 434 (10.4 percent) were positive for calves reported as class unknown.

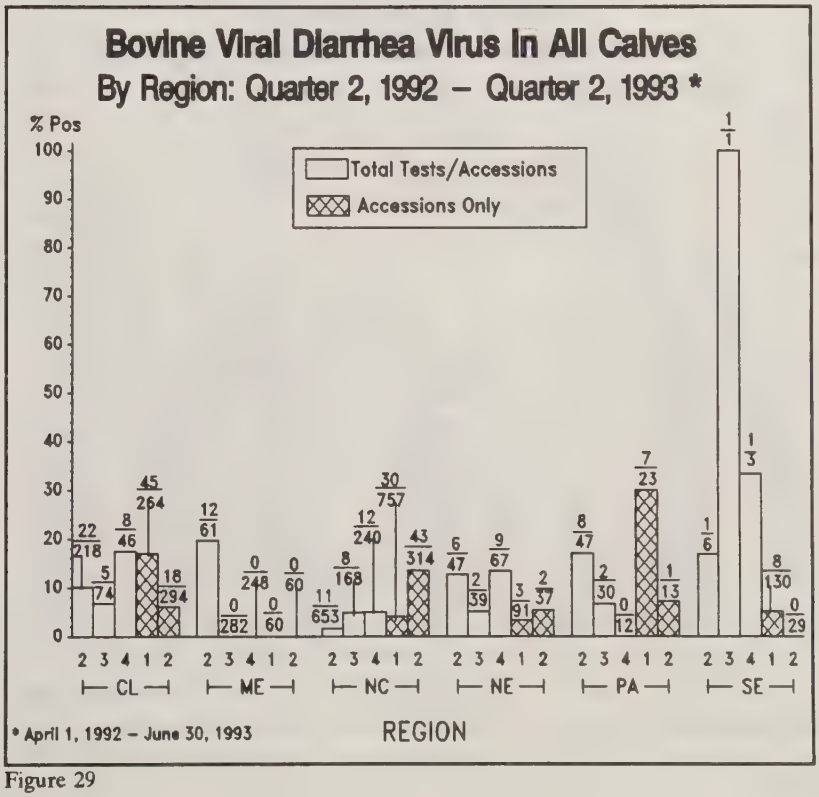


Figure 29

☐ Coronavirus

Criteria: Antigen by FA or ELISA, or electron microscopy of feces/intestinal contents.

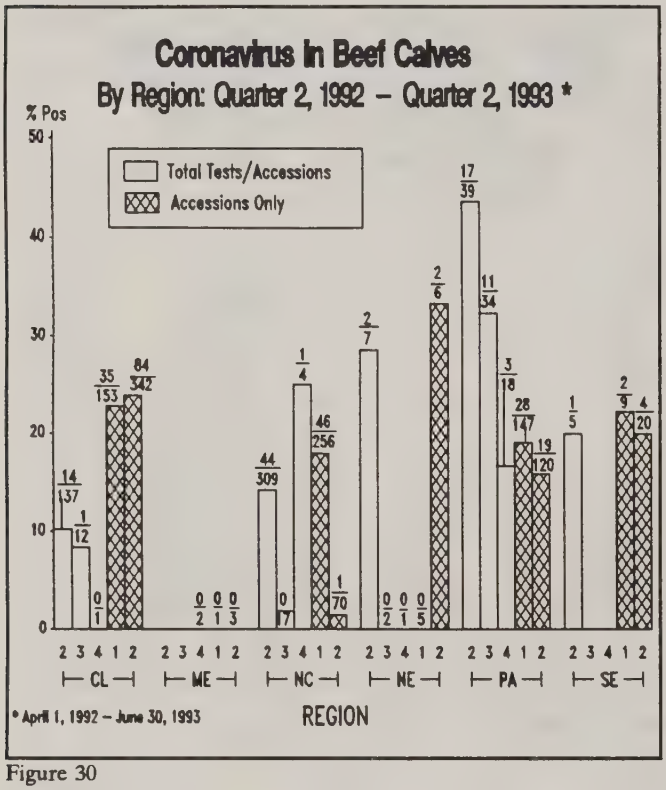


Figure 30

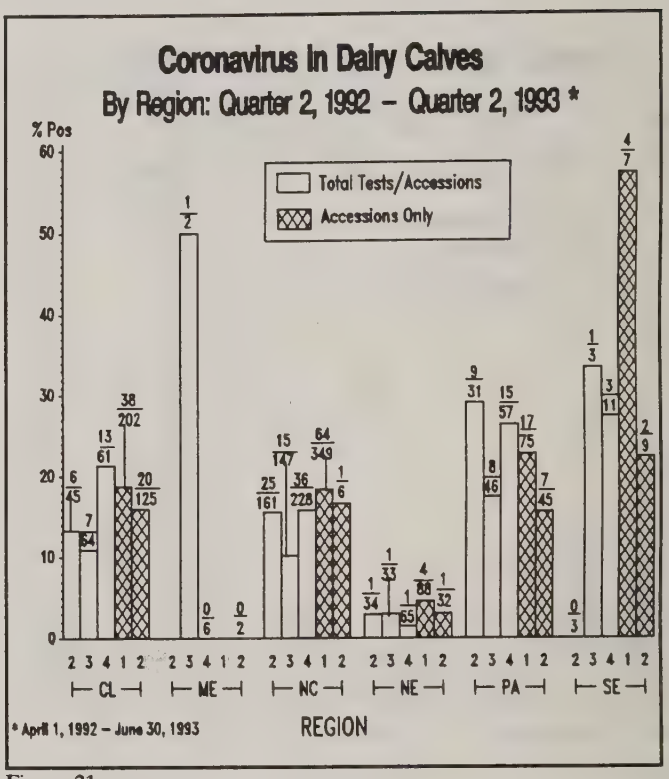


Figure 31

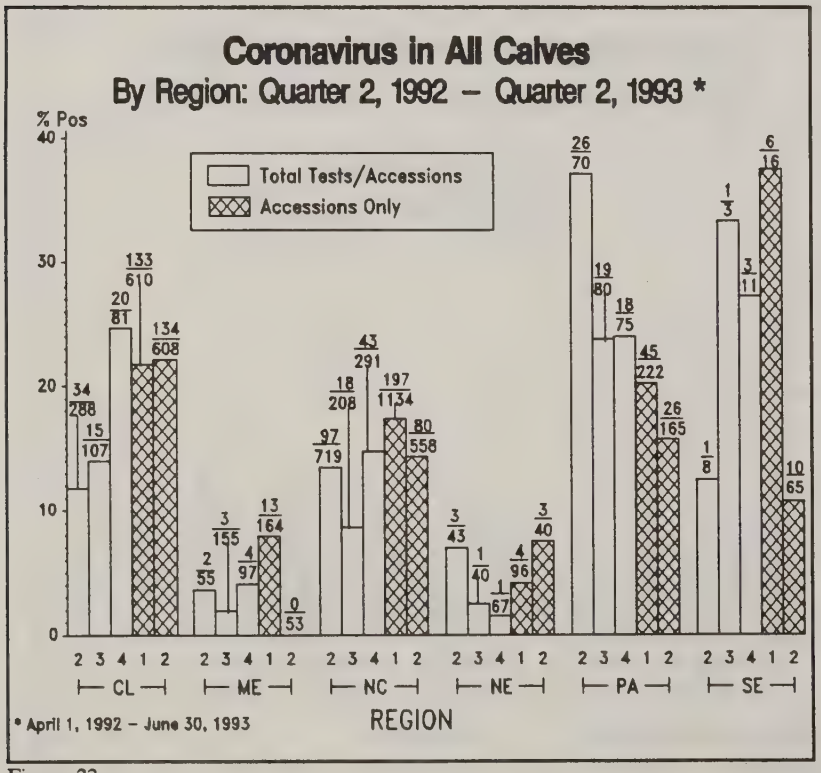


Figure 32

For beef calves (Figure 30), 111 out of 564 (19.7 percent) accessions were positive for coronavirus, and 31 out of 224 (13.8 percent) dairy accessions were positive (Figure 31). Overall, 256 out of 1,505 (17.0 percent) calf accessions tested positive in the second quarter of 1993 (Figure 32). This is similar to the previous quarter for overall accessions (407 out of 2,298, 18.1 percent).

☐ Rotavirus

Criteria: Antigen by FA or ELISA, or electron microscopy of feces/intestinal contents.

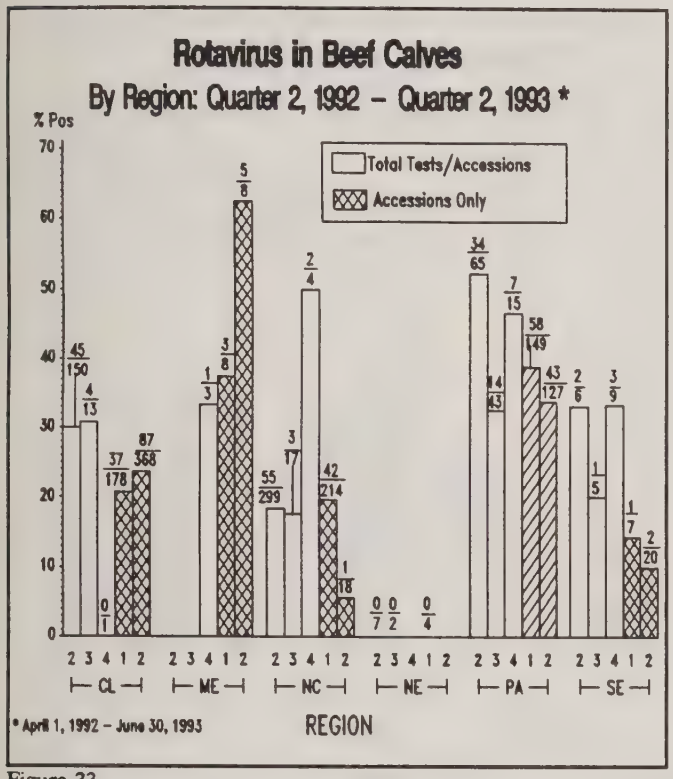


Figure 33

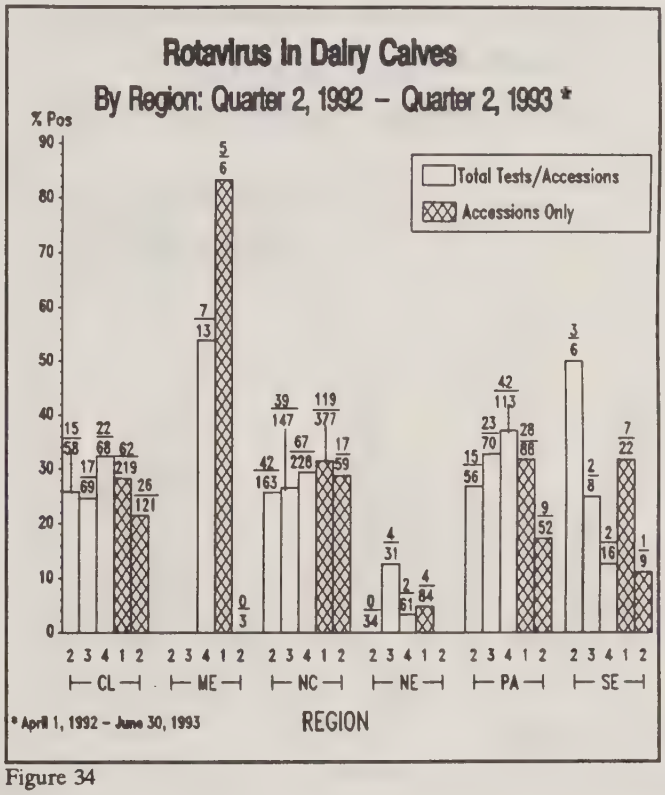


Figure 34

The percentages of positive accessions for rotavirus for dairy and beef calves (Figures 33 and 34) were 21.6 and 25.4 percent respectively, but only 18.0 percent of unclassified calves tested positive. Overall, 317 out of 1,489 calf accessions tested positive for Rotavirus during the second quarter of 1993 (21.3 percent) (Figure 35). This is slightly less than the previous quarter (563/2,404, 23.4 percent).

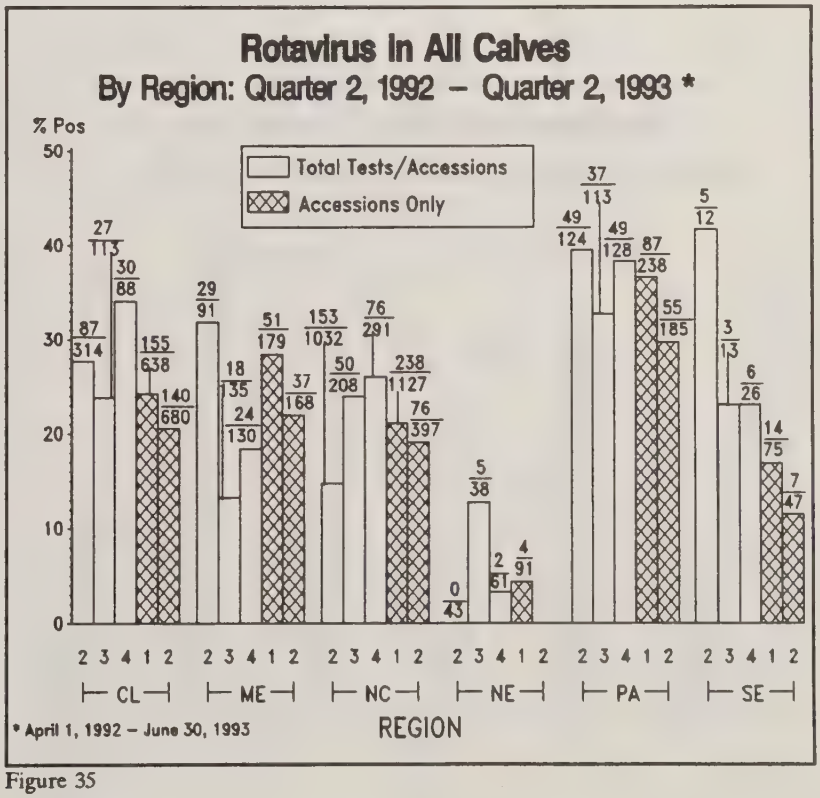


Figure 35

☐ Cryptosporidia

Criteria: Parasitologic or histopathologic exam.

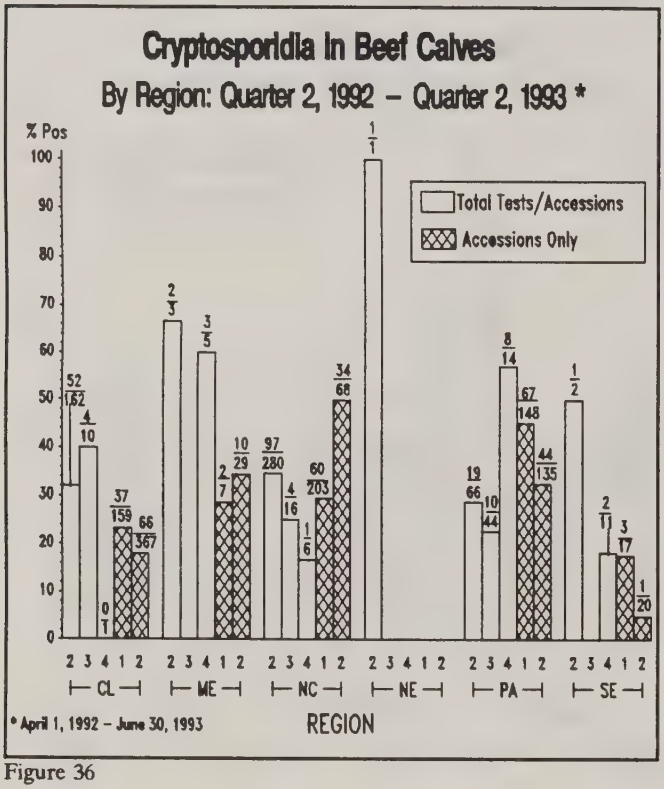


Figure 36

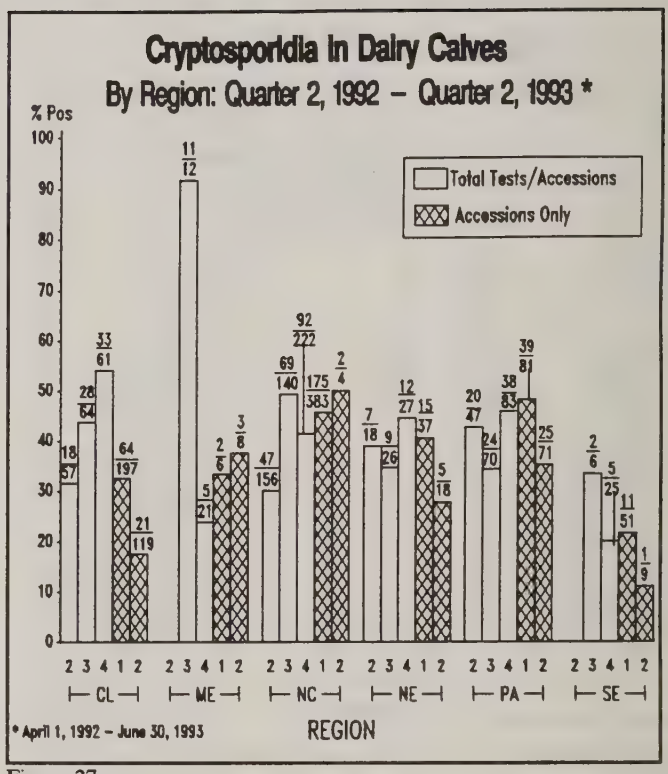


Figure 37

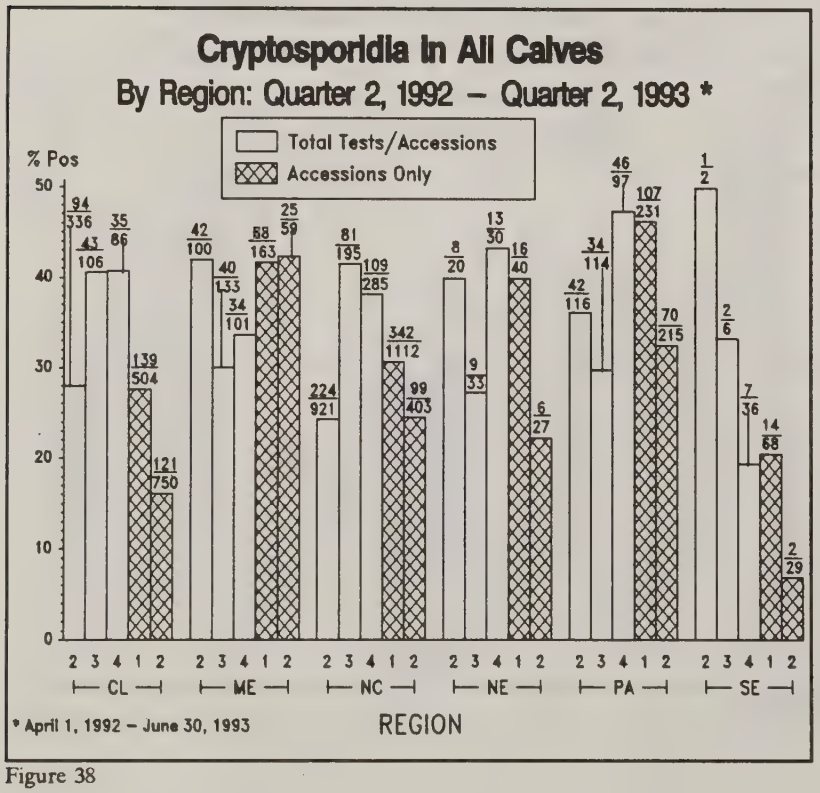


Figure 38

The overall percent of positive accessions for Cryptosporidia in beef (Figure 36), dairy (Figure 37), and unknown calves were 24.9, 24.4, and 18.3 percent respectively. These percents are all lower than the previous quarter (32.1, 40.6, and 25.3 respectively). Out of the nine regions reporting for the second quarter of 1993, all but Florida (FL) (0 out of 4) had at least one positive accession for Cryptosporidia. Overall, 331 out of 1,506 (22.0 percent) accessions were positive. The CL region accounted for 121 out of the 331 positive accessions (Figure 38).

☐ Coccidia

Criteria: Parasitologic or histopathologic exam.

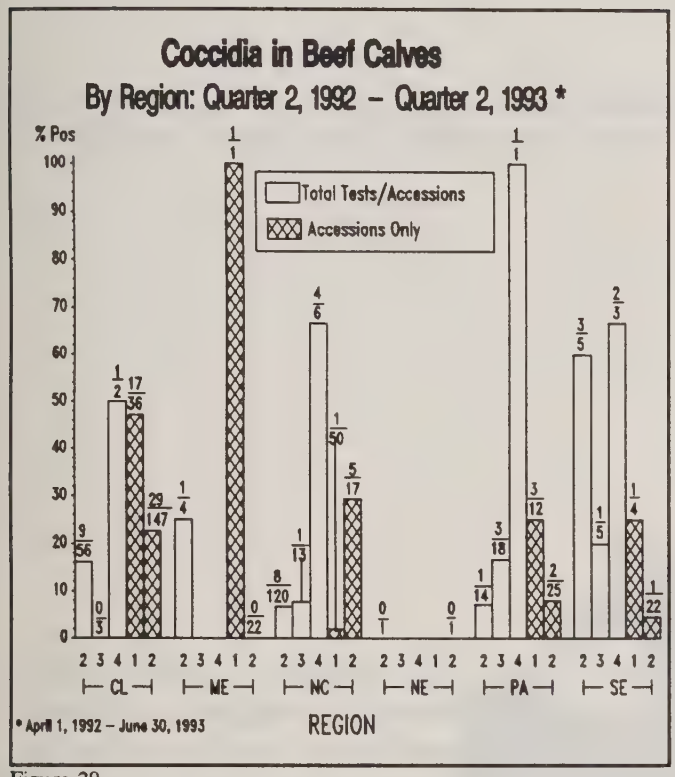


Figure 39

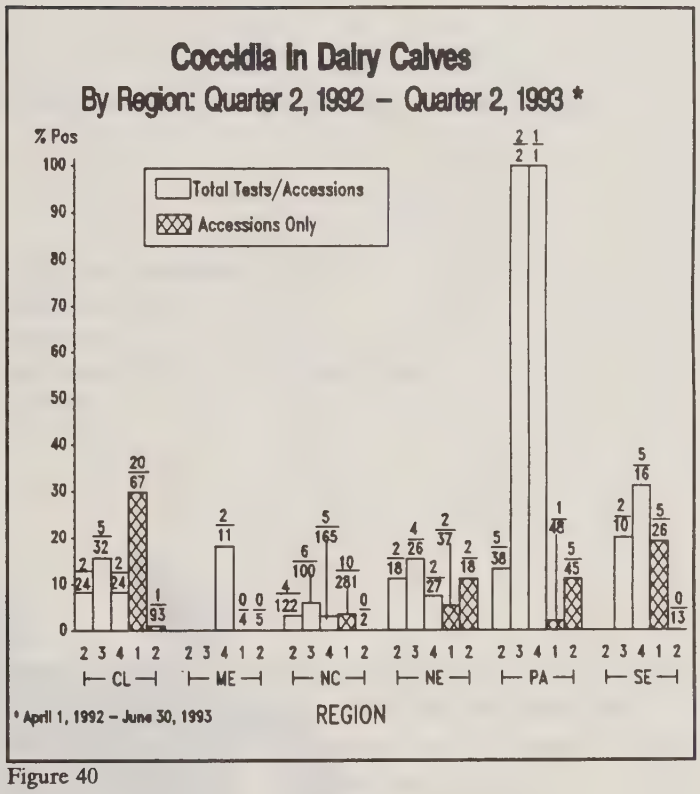


Figure 40

Thirty-seven of the 234 beef calf accessions (15.8 percent) tested positive for coccidia (Figure 39), compared to 8 out of 177 (4.5 percent) of dairy calf accessions (Figure 40). Most of the accessions (598) were not classified as to beef or dairy, and only 2.3 percent of these were positive for coccidia. Overall, there were 59 out of 1,009 (5.9 percent) positive accessions for coccidia reported from all calf accessions for the second quarter of 1993 (Figure 41). This is about the same as the previous quarter (78/1,249, 6.2 percent).

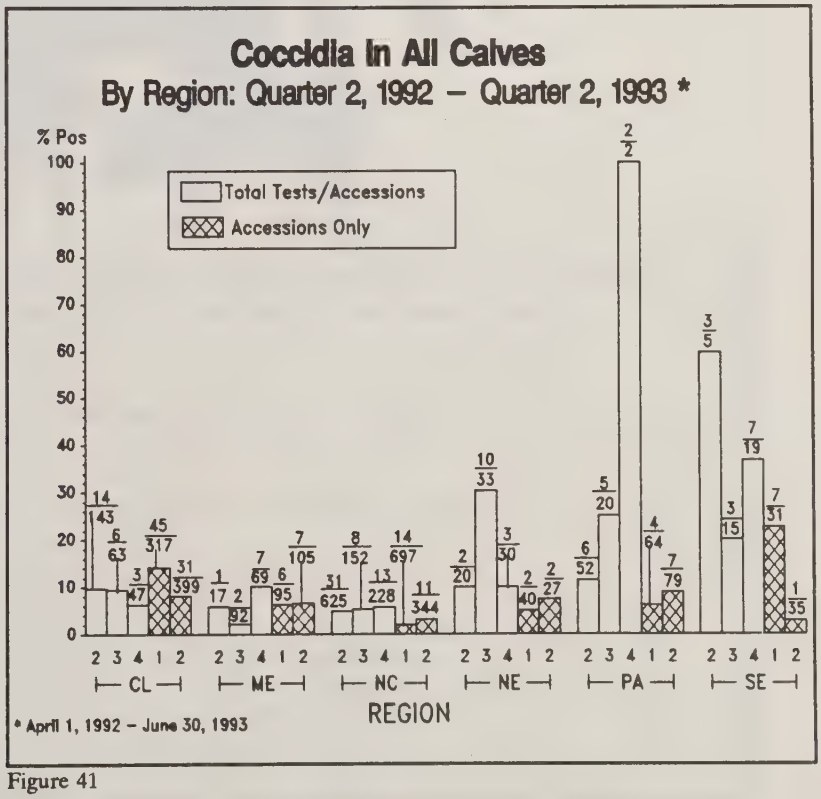


Figure 41

III. Etiologic Agents Associated with Piglet Diarrhea

Section III characterizes agents most commonly associated with diarrhea in piglets (8 weeks of age or less) from accessions reported to veterinary diagnostic laboratories.

NOTE: Prior to Summer 1993, some laboratories reported total tests run and others reported accessions. Beginning Summer 1993, all labortories report accessions. Differences seen in percent positive reported may reflect the change in reporting. Not all laboratories report on all diarrheal agents and some reoprt for mere than one State. Therefore, the accession denominators for each region may not agree from one agent to the next.

Key to Figures in this Section:

- **Prior to Summer 1993, some labs reported total tests run and others reported accessions. Beginning Summer 1993, all labs report accessions. Differences seen in percent positive reported may reflect the change in reporting.**
- **In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.**
- **Data are presented by region of specimen origin and quarter year of specimen submission.**
- **Abbreviations for regions used in the figures are:**

AK = Alaska	**MN = Mountain**	**SC = South-Central**
CL = Central	**NC = North-Central**	**SE = Southeast**
FL = Florida	**NE = Northeast**	**SW = Southwest**
HI = Hawaii	**PA = Pacific**	**UNK = Unknown**
ME = Mideast	**PR = Puerto Rico & U.S. Virgin Islands**	

☐ *Clostridium perfringens* Type C

Criteria: Gross and histopathologic exam.

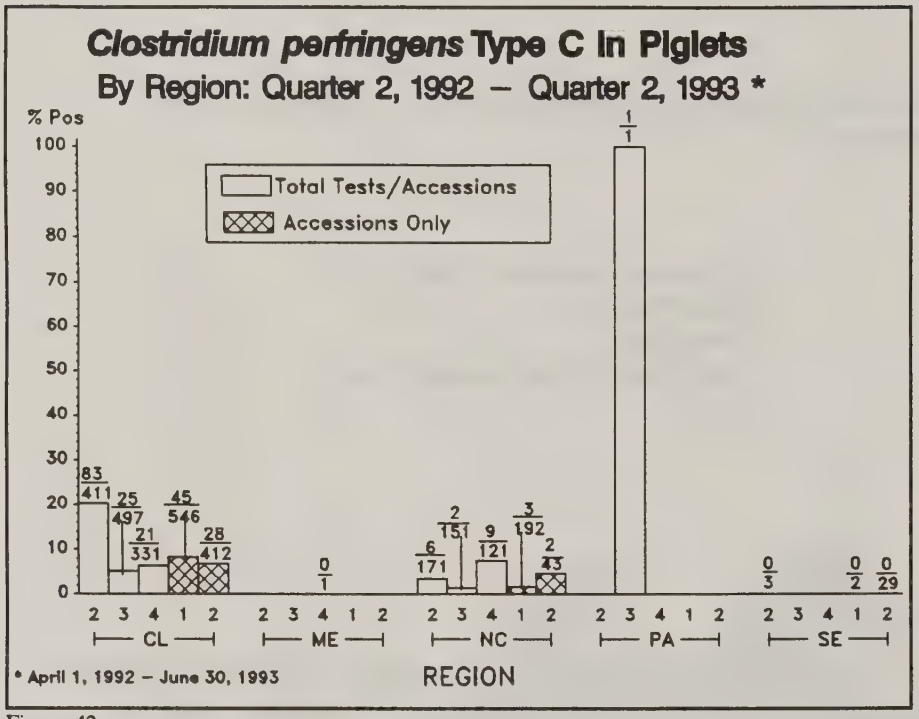


Figure 42

Most of the 30 out of 490 (6.1 percent) piglet accessions positive for *Clostridium perfringens* Type C during the second quarter of 1993 were from the Central region (CL) (28/412, 6.8 percent). The North-Central (NC) was the only other region with positive accessions (2/43, 4.7 percent) (Figure 42).

☐ *Escherichia coli*

Criteria: Culture from intestine and demonstration of at least one virulence characteristic such as: adhesive antigens, bacterial adherence, or enterotoxin.

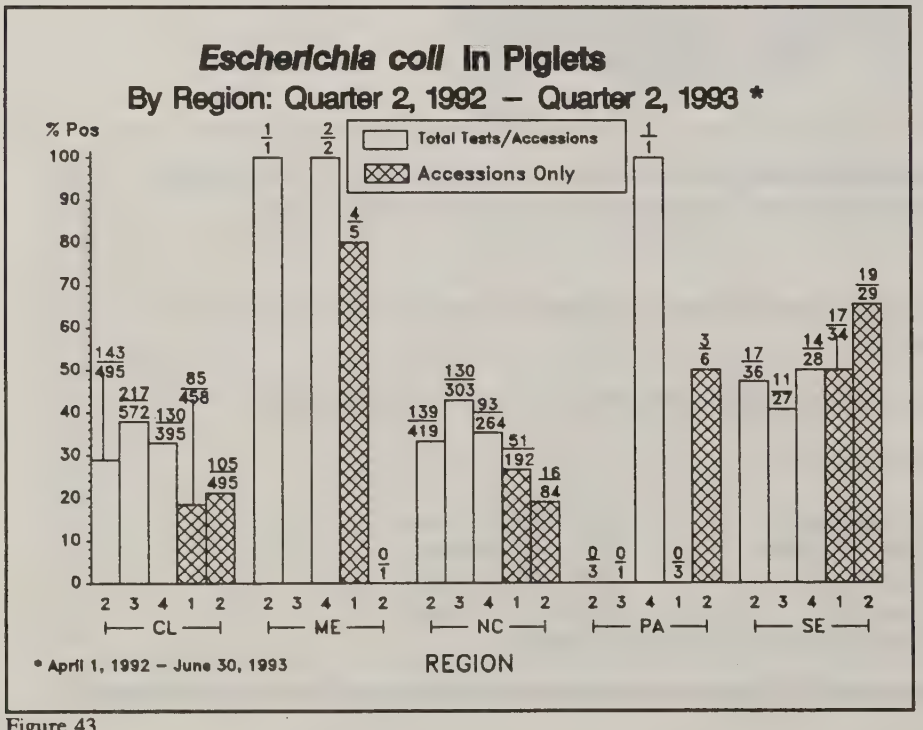


Figure 43

Overall, 144 out of 623 (23.1 percent) of *Escherichia coli* accessions tested positive during the second quarter of 1993 (Figure 43). This is similiar to the previous quarter (116 out of 544, 23.3 percent). The Southeast (SE) region had the highest percent positive with 65.5 percent (19 out of 29). The Central (CL) region had the greatest number of positive accessions with 105 out of 495 (21.2 percent).

☐ Rotavirus

Criteria: Antigen by FA or ELISA, or electron microscopy of feces/intestinal contents.

For all regions combined, 102 out of 540 (18.9 percent) accessions were positive for Rotavirus during the second quarter of 1993. This is a slightly higher percentage than the previous quarter (154 out of 886, 17.4 percent). Specimens from the Central (CL) region accounted for 80 of the 102 total positive accessions (Figure 44).

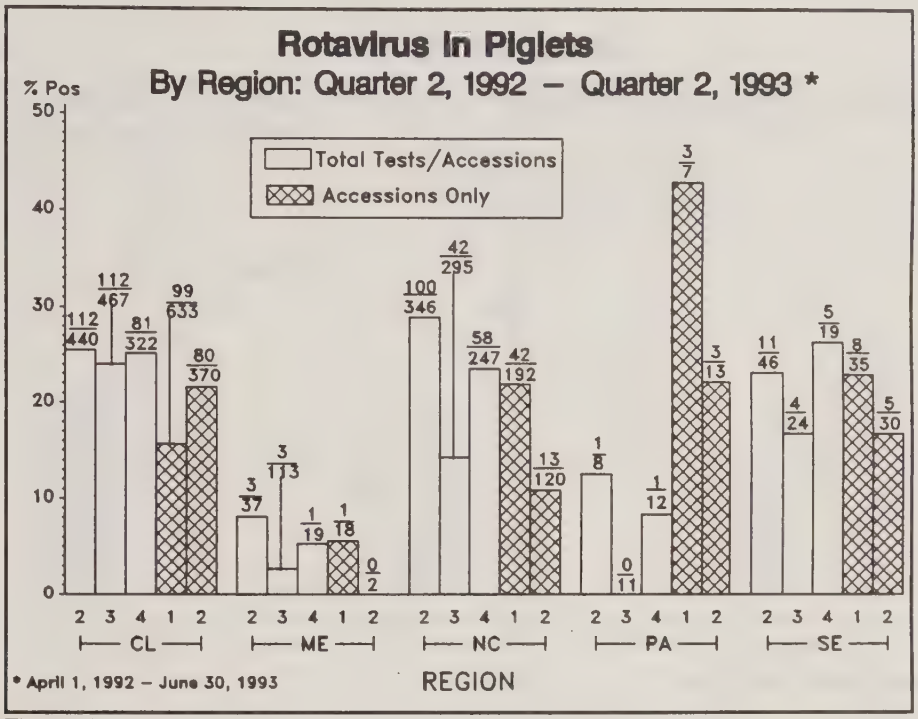


Figure 44

☐ Transmissible Gastroenteritis Virus (TGE)

Criteria: Antigen by FA or electron microscopy.

A total of 82 out of 534 (15.4 percent) accessions were positive for TGE during the second quarter of 1993. This is less than the previous quarter (181 out of 924, 19.6 percent). The Central (CL) region accounted for 67 of the 82 positive accessions (Figure 45).

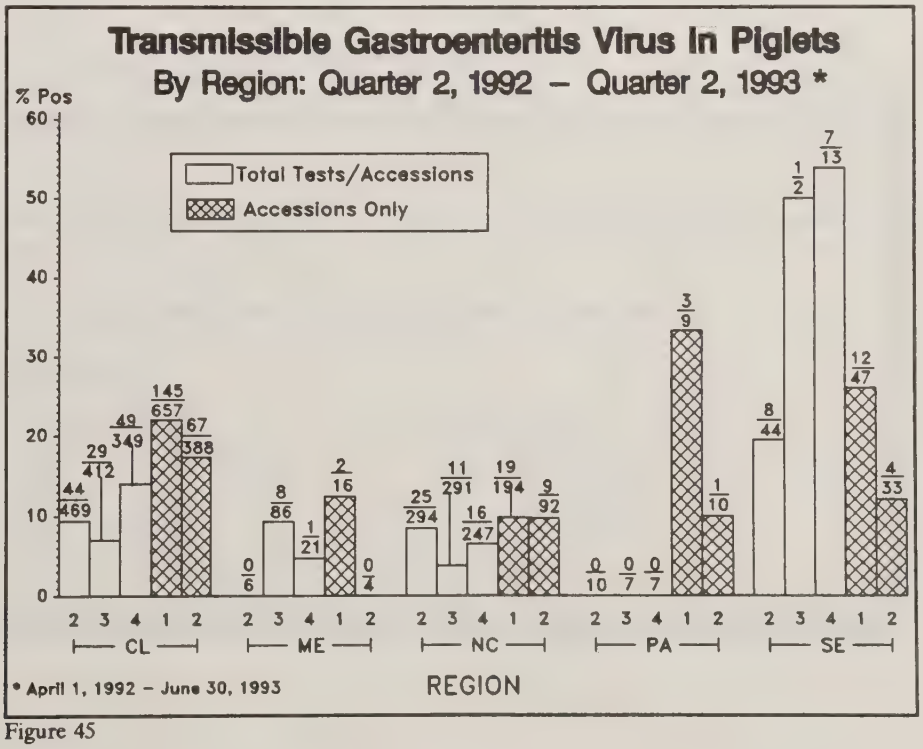


Figure 45

☐ Coccidia

Criteria: Parasitologic or histopathologic.

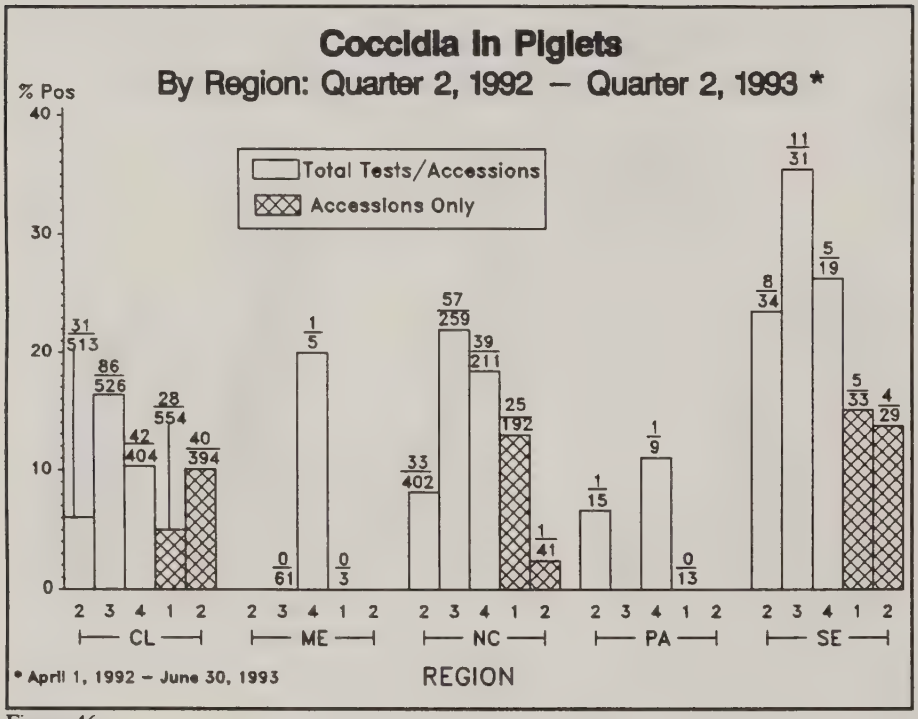


Figure 46

For all regions combined, there were 47 positive accessions out of 472 (10.0 percent) for coccidia in the second quarter of 1993 (Figure 46). This is a higher percentage than the previous quarter (58 out of 799, 7.3 percent). The Central (CL) region accounted for 40 of the 47 positive accessions. The South-Central (SC) region (not shown) reported 2 out of 5 (40.0 percent) positive accessions.

IV. Etiologic Agents Associated with Bovine Abortion

Section IV characterizes agents most commonly associated with bovine abortions (aborted fetuses or congenitally infected calves) from accessions reported to veterinary diagnostic laboratories.

Key to Figures in this Section:

- **In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.**
- **In some cases, the denominator is a minimum because some laboratories were not able to determine the total number of negative tests performed.**
- **Data are presented by region of specimen origin and quarter year of specimen submission.**
- **Abbreviations for regions used in the figures are:**

AK = Alaska	**MN = Mountain**	**SC = South-Central**
CL = Central	**NC = North-Central**	**SE = Southeast**
FL = Florida	**NE = Northeast**	**SW = Southwest**
HI = Hawaii	**PA = Pacific**	**UNK = Unknown**
ME = Mideast	**PR = Puerto Rico & U.S. Virgin Islands**	

☐ *Neospora* spp.

Criteria: Histopathology and detection of antigen by immunohistochemistry, or detection of antibody in aborted fetus by indirect FA.

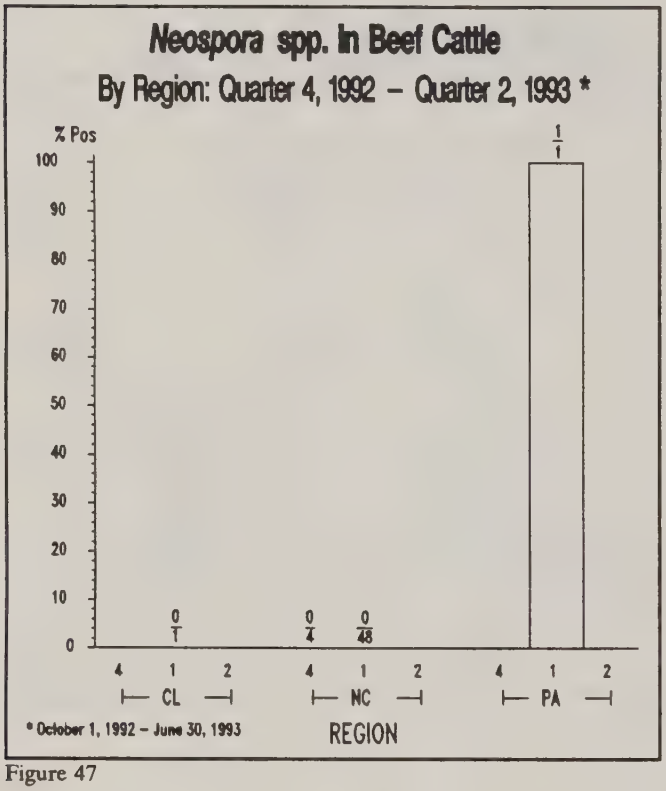


Figure 47

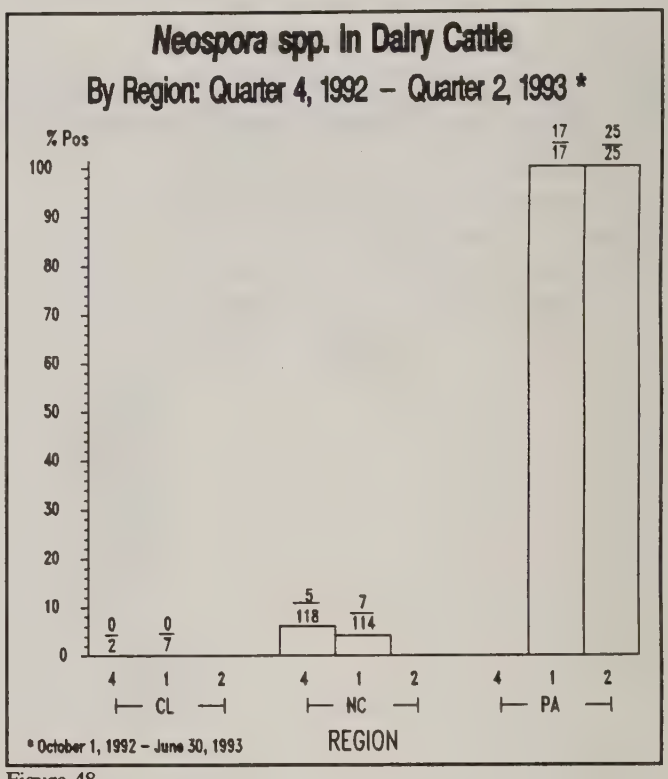


Figure 48

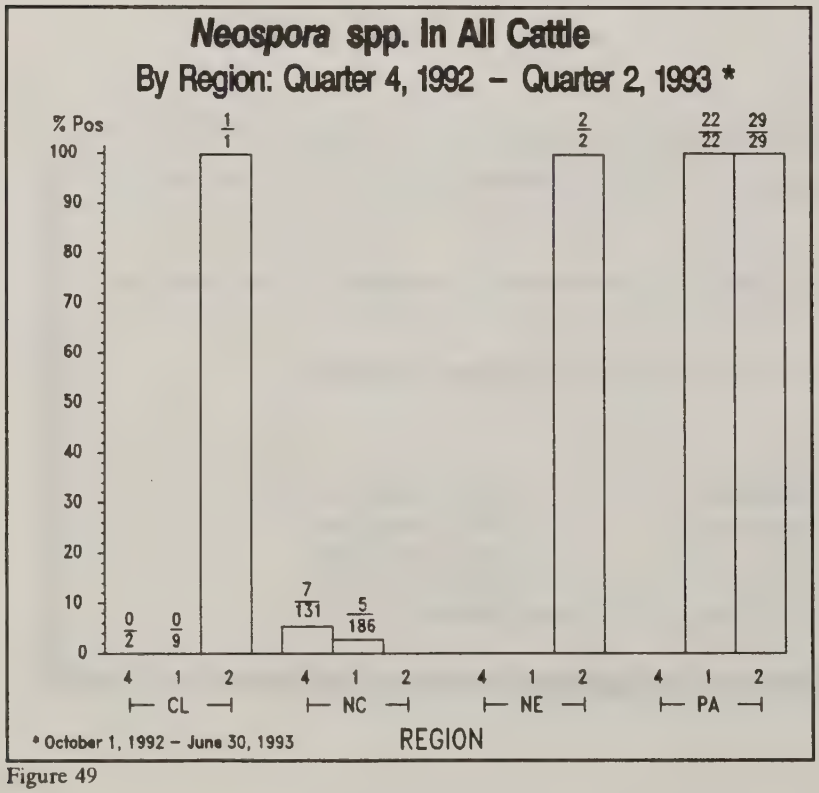


Figure 49

In some cases, the denominator is a minimum because total accessions were not reported. Three regions reported results for *Neospora* spp. during the second quarter of 1993 (CL, NE, PA). All 32 accessions reported for the second quarter tested positive (Figures 47-49).

DxNEWS

This section contains news items and articles of potential interest to diagnostic laboratories. Submissions from nonparticipating laboratories are welcome.

Bluetongue Testing to Qualify Animals for Export to Canada

Recently, Agriculture Canada announced that the bluetongue (BT) competitive enzyme-linked immunosorbent assay (C-ELISA) will be the only BT test that can be used to qualify live ruminants, semen, and embryos for importation into Canada. There will be a 90-day phase-in period during which Agriculture Canada will continue to accept either agar gel immunodiffusion (AGID) or C-ELISA results. This will allow animals currently being tested for export to meet the requirements. On November 1, 1993, only the C-ELISA test will be accepted, and only laboratories approved by the U.S. Department of Agriculture to do the BT AGID test will be allowed to do BT C-ELISA testing for Canadian export.

[NVSL News Letter, Issue 7, September 1993]

Update on Foreign Animal Disease

Swine Vesicular Disease. One outbreak was identified in North-East Spain, in February 1993. Control measures included placing the unit under quarantine, controlling movements in the affected zone, and slaughter of sick animals.

Foot and Mouth Disease. Outbreaks affecting bovine and buffalo species have occurred in two provinces in Italy, in March and April of 1993. Control measures include "stamping-out."

Rinderpest. India has plans to eradicate rinderpest among cattle by 1998. The eradication program includes vaccination and identification of all susceptible animals in India by 1997. Animals will be monitored by blood sampling to ensure they have been protected.

[USDA:APHIS:IS Plant and Animal Health Update, May 1993]

Lab Notes and DxNEWS Article Submissions are Encouraged

Readers of the DxMONITOR Animal Health Report are encouraged to submit items suitable for the "Lab Notes" and the "DxNEWS." All articles should be typed double spaced. Photos/artwork should be camera ready copy. If possible, please provide your article on diskette and indicate what type of software was used to create/store the file (i.e., WordPerfect, Word Star). Send submissions to the address on the inside front cover of this issue.

Free Data Submission Software Available

The DxMONITOR Data Submission System (DDSS) is available free of charge to any laboratory interested in participating in the Veterinary Diagnostic Laboratory Reporting System (VDLRS).

To use the DDSS, data must first be captured by a laboratory in whatever manner works best for that particular laboratory. The summary totals of those data are then entered into a data entry screen which is provided as part of the DDSS. A computer file is automatically created for use in transferring the data. A reference guide leads the user through this process.

Because the system was written within a software package called "Epi Info", a copy of this program and a user's guide are also included. Epi Info was developed by the Centers for Disease Control and the World Health Organization. It has many capabilities including data analysis, word processing, statistics, etc. Please contact the address on the inside front cover of this issue for more information about the DDSS.

Materials available from the VDLRS are listed below. Send this clip-out order form to:

Veterinary Diagnostic Laboratory
Reporting System
USDA:APHIS:VS
555 South Howes, Suite 200
Fort Collins, CO 80521-2586

Quantity

_____ **DxMONITOR Animal Health Report*** *(Quarterly report of VDLRS data)*

_____ **Introduction to the VDLRS** *(An informational brochure)*

_____ **Report of the 1991 DxMONITOR Committee Meeting** (August 1991)

_____ **Report of the 1990 VDLRS Planning Committee Meeting** (June 1990)

* The most recent issue of the DxMONITOR will be sent. If you want past issues, please call (303) 490-7800.

Name:_____

Affiliation:_____

Street:_____

City/State:_____
ZIP:_____

☐ Please add my name to the mailing list for the DxMONITOR Animal Health Report.

Appendix

This section provides tables displaying the most recently reported diagnostic laboratory data.

Key to Tables in this Section:

- Data are presented by laboratory of specimen origin and quarter of specimen submission.
- Values represent the number of positive tests or accessions (P) and the number of tests performed or accessions tested (T).
- Values reported in the "TOT" category represent all tests performed during the quarter This category may include some tests for which a month of specimen submission was not known. Therefore, the sum of the quarterly values may not be equal to the "TOT" values.
- Data totals (positives and total tests) shown for "All Calves" include specimens of unknown bovine class and those from veal calves, in addition to specimens from beef or dairy calves. Thus, the sums of dairy calf totals and beef calf totals do not always equal the totals shown for all calves.
- Values reported for all diagnoses/agents are for quarters in 1992 and 1993.
- In some cases, the reported total number of tests performed is a minimum because some laboratories were not able to determine the total number of negative tests performed.
- Abbreviations for laboratories used in the tables are:

ARVDL = Arkansas	CAVDL = California	FLVDL = Florida	GAATH = GA, Athens
GATFT = GA, Tifton	IAVDL = Iowa	KYMSU = KY, Hopkinsville	KYVDL = KY, Lexington
MNDVL = Minnesota	MOVDL = Missouri	NDVDL = North Dakota	NEVDL = Nebraska
NMVDL = New Mexico	NVSL = National	NYVDL = New York	OHVDL = Ohio
OKVDL = Oklahoma	ORVDL = Oregon	PRVDL = Puerto Rico	SCVDL = South Carolina
SDVDL = South Dakota	TNVDL = Tennesssee	TXVDL - Texas	VAVDL = Virginia
WYVDL = Wyoming			

		Clostridium perfringens Type C in Piglets					Escherichia coli in Piglets				
		|------- Quarter ------- |					|------- Quarter ------- |				
Lab		3/92	4/92	1/93	2/93	TOT	3/92	4/92	1/93	2/93	TOT
CAVDL	P	1				1	0	1	0	3	4
	T	1				1	1	1	3	6	11
GAATH	P				0	0	1	2		0	3
	T				2	2	3	2		2	7
GATFT	P				0	0	10	12	17	19	58
	T				27	27	23	24	32	27	106
IAVDL	P	24	20	37	25	106	111	70	63	79	323
	T	385	285	431	295	1396	353	257	343	347	1300
MNVDL	P	0	2	2		4	54	33	44		131
	T	124	98	152		374	129	98	152		379
MOVDL	P	0	1	6	2	9	43	15	15	13	86
	T	74	39	54	45	212	74	39	54	45	212
NDVDL	P	1	2	1	0	4	14	5	8	6	33
	T	44	24	50	35	153	44	26	50	35	155
NMVDL	P				0	0				0	0
	T				0	0				2	2
OHVDL	P	1		2	0	3	7		6	2	15
	T	19		54	83	156	19		54	83	156
PRVDL	P								3		3
	T								3		3
SDVDL	P	1	8		3	12	118	101		22	241
	T	4	10		3	17	259	247		75	581
VAVDL	P							1	4	0	5
	T							1	5	1	7

		Rotavirus in Piglets					Transmissible Gastroenteritis Virus in Piglets				
		|------- Quarter ------- |					|------- Quarter ------- |				
Lab		3/92	4/92	1/93	2/93	TOT	3/92	4/92	1/93	2/93	TOT
CAVDL	P	0	1	3	3	7	0	0	3	1	4
	T	16	15	7	13	51	10	10	9	10	39
GAATH	P				0	0	1		2	1	4
	T				2	2	1		3	2	6
GATFT	P	3	5	6	5	19		6	9	3	18
	T	23	18	32	27	100		12	32	27	71
IAVDL	P	88	62	96	76	322	9	29	96	44	178
	T	289	195	511	245	1240	233	224	534	255	1246
KYMSU	P	2	1	0		3	8	0	2		10
	T	50	8	3		61	33	9	4		46
MNVDL	P	27	33	44		104	2	9	21		32
	T	126	98	152		376	124	98	152		374
MOVDL	P	0	0	2	2	4	8	10	10	9	37
	T	30	30	62	30	152	30	30	62	32	154
NDVDL	P	1	0	0	0	1	0	1	2	0	3
	T	44	24	50	35	153	44	24	52	35	155
NMVDL	P				0	0				0	0
	T				0	0				0	0
OHVDL	P	1		2	1	4	4		35	11	50
	T	19		54	83	156	19		54	83	156
SDVDL	P	38	44		15	97	17	18		13	48
	T	255	224		102	581	254	224		82	560
TNVDL	P				0	0			1	0	1
	T				1	1			9	4	13
VAVDL	P	1	0	1	0	2	0	0	0	0	0
	T	63	10	15	2	90	53	10	12	4	79

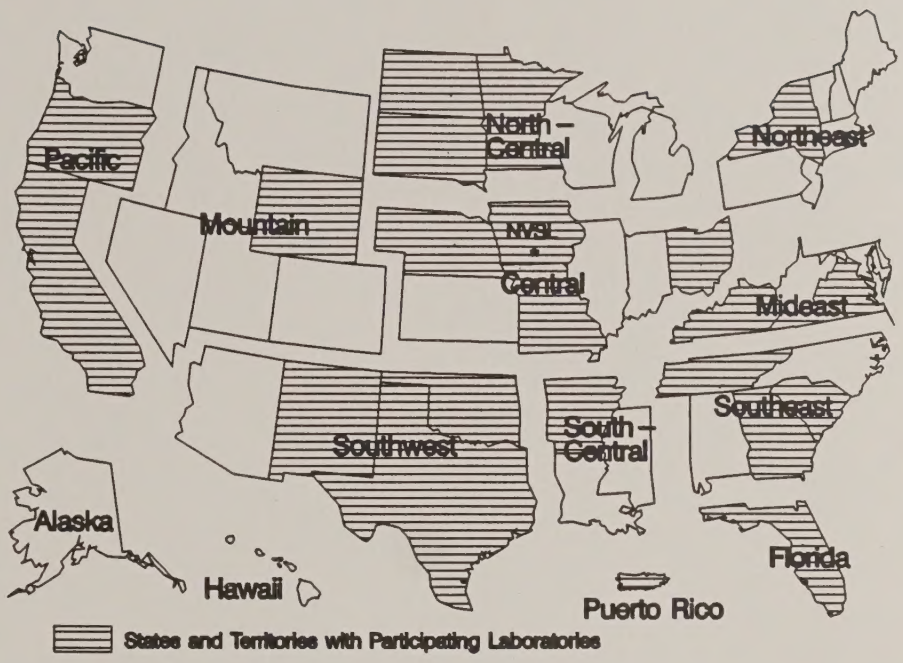
Coccidia in Piglets

Lab		Quarter 3/92	4/92	1/93	2/93	TOT
CAVDL	P		1	0		1
	T		11	13		24
GAATH	P	1			0	1
	T	2			2	4
GATFT	P	10	5	5	4	24
	T	29	18	32	27	106
IAVDL	P	56	27	26	27	136
	T	353	269	400	269	1291
KYMSU	P	0	1	0		1
	T	60	4	3		67
MNVDL	P	26	18	23		67
	T	129	98	152		379
MOVDL	P	2	4	0	6	12
	T	59	76	92	45	272
NDVDL	P	2	1	3	0	6
	T	45	24	50	35	154
NMVDL	P				0	0
	T				3	3
OHVDL	P	4		1	4	9
	T	19		54	83	156
PRVDL	P			0		0
	T			3		3
SDVDL	P	53	31		6	90
	T	182	156		8	346
VAVDL	P	0				0
	T	1				1

REGIONS OF THE VDLRS

Abbreviations for regions used in this issue are:

AK = Alaska
CL = Central
FL = Florida
HI = Hawaii
ME = Mideast
MN = Mountain
NC = North-Central
NE = Northeast
PA = Pacific
PR = Puerto Rico & U.S. Virgin Islands
SC = South-Central
SE = Southeast
SW = Southwest
UNK = Unknown



Contributing Laboratories

The following laboratories have contributed data reported in the DxMONITOR Animal Health Report. Thanks to all of the individuals at these laboratories who have worked to make this report possible.

- Arkansas Livestock and Poultry Commission Diagnostic Laboratory (Little Rock, AR)
- California Veterinary Diagnostic Laboratory System (Davis, CA)
- Bureau of Diagnostic Laboratories, Florida Department of Agriculture (Kissimmee, FL)
- Veterinary Diagnostic Laboratory, University of Georgia (Athens, GA)
- Veterinary Diagnostic and Investigational Laboratory, University of Georgia (Tifton, GA)
- Veterinary Diagnostic Laboratory, Iowa State University (Ames, IA)
- National Veterinary Services Laboratories (Ames, IA)
- Breathitt Veterinary Center, Murray State University (Hopkinsville, KY)
- Livestock Disease Diagnostic Center, University of Kentucky (Lexington, KY)
- Minnesota Veterinary Diagnostic Laboratory, University of Minnesota (St. Paul, MN)
- Veterinary Medical Diagnostic Laboratory, University of Missouri-Columbia (Columbia, MO)
- Veterinary Diagnostic Center, University of Nebraska-Lincoln (Lincoln, NE)
- Veterinary Diagnostic Services, New Mexico Department of Agriculture (Albuquerque, NM)
- New York State Veterinary Diagnostic Laboratory, Cornell University (Ithaca, NY)
- North Dakota Veterinary Diagnostic Laboratory, North Dakota State University (Fargo, ND)
- Reynoldsburg Laboratory, Ohio Department of Agriculture (Reynoldsburg, OH)
- Oklahoma Animal Disease Diagnostic Laboratory, Oklahoma State University (Stillwater, OK)
- Veterinary Diagnostic Laboratory, Oregon State University (Corvallis, OR)
- Puerto Rico Animal Diagnostic Laboratory (Dorado, PR)
- Clemson Diagnostic Laboratory, Clemson University (Columbia, SC)
- Animal Disease Research and Diagnostic Laboratory, South Dakota State University (Brookings, SD)
- C.E. Kord Animal Disease Diagnostic Laboratory, Tennessee Department of Agriculture (Nashville, TN)
- Texas Veterinary Medical Diagnostic Laboratory, Texas A&M University (College Station, TX)
- Bureau of Laboratory Services, Virginia Department of Agriculture and Consumer Services (Richmond, VA)
- Wyoming State Veterinary Laboratory (Laramie, WY)

USDA:APHIS:VS
DxMONITOR
555 South Howes, Suite 200
Fort Collins, CO 80521-2586

Bulk Rate
U.S. Postage Rate
Permit No.293
Fort Collins, CO

Dr. Bonnie Buntain
USDA:Extension Service
Room 3334 South Building
14th & Independence Avenue, SW
Washington, DC 20250-0900

If you wish to continue to receive the DxMONITOR, you must return page 1 to us.

AHI28.08/93